Equity in Health Financing: Review of Health Care Financing in four Organization for Economic Cooperation Development (OECD) Countries, Canada, The Republic of Korea, Mexico and the United Kingdom

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DECLARATION

I, Caroline Gacheri Kinyua, hereby declare that the work on which this dissertation is based is my original work (except where acknowledgements indicate otherwise) and that neither the whole work nor any part of it has been, is being, or is to be submitted for another degree in this or any other university.

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Name: _____

Date: _____

DEDICATION

I dedicate this thesis to my loving parents for their selflessness, undying love, care and encouragement that has got me where I am today.

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ABSTRACT

Background: The World Health Assembly Resolution in 2005 urges Member States to introduce and/or strengthen universal coverage policy in order to offer financial risk protection (FRP) to households in order to avoid catastrophic health expenditures and impoverishment from seeking care. The other goal of universal coverage is to ensure equitable access to healthcare based on relative need, irrespective of ability to make health care payments, social status or geographical location. The two prepaid financing mechanisms that guarantee universal coverage are social health insurance and general tax revenue.

Aim: To undertake a comparative analysis of selected OECD countries with universal coverage to derive lessons that could inform the development of universal coverage policy in low-to-middle income (LMICs) countries.

Methods: Empirical evidence from the OECD was sourced through an extensive review of published literature from print and electronic sources. Selection sought to include a range of countries in different continents and health systems with a long history as universal systems. Most universal systems are in OECD countries. OECD countries were selected because of availability of quality and credible data. The data for the analysis is drawn from the OECD Health Data 2008 dataset. Kutzin's conceptual framework is the analytical tool for the critical analysis of evidence, including OECD data, to evaluate the functionality of each health system based on the concepts of equity, sustainability, efficiency and feasibility.

Results: Findings from the analysis show that publicly funded (primarily tax-funded) systems have lower out-of-pocket expenditures and offer greater financial risk protection. Systems with a single risk pool and a single payer tend to be more administratively efficient than multiple pools and payers. Allocating health resources based on a needs-based allocation formula is more equitable than historical budgeting. Capitation provider payment promotes greater efficiency than fee-for-service. A purchaser-provider split can improve efficiency.

LIST OF ABBREVIATIONS

OECD	Organization for Economic Cooperation and Development
FRP	Financial risk protection
UC	Universal coverage
SHI	Social Health Insurance
LMIC	Low-to-middle income country
OOP	Out-of-pocket
PHI	Private Health Insurance
NHI	National Health Insurance
SSS	Social Security System
NHS	National Health Service
PCT	Primary Care Trust
RHA	Regional Health Authority
NHIC	National Health Insurance Corporation
CHA	Canada Health Act
CHT	Canada Health Transfer
NICE	National Institute for Clinical Excellence
ISTC	Independent Sector Treatment Centres
HTA	Health Technology Assessment
CT	Computed Tomography
MRI	Magnetic Resonance Imaging
GP	General Practitioner
MCO	Managed Care Organization
IMSS	the Mexican Institute for Social Security

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PART A: RESEARCH PROTOCOL

Executive Summary

The World Health Assembly Resolution in 2005 urges Member States to introduce and strengthen universal coverage policies in order to offer financial risk protection (FRP) and ensure equitable access to healthcare based on relative need, irrespective of ability to make health care payments, social status or geographical location. This is achievable through the establishment of financing mechanisms that guarantee universal coverage mainly social health insurance and general tax revenue.

The present study thus seeks to undertake a comparative analysis of selected OECD countries that have attained (or are transiting to) universal coverage to derive lessons that can be applied in the development of universal coverage policy especially in LMICs. The comparative analysis will identify best practice in the four OECD countries, given their lengthy experience as universal systems, specifically as relates to the extent to which financial risk protection and equity in access to health care services have been upheld.

Empirical evidence from the OECD countries will be gathered from an in-depth review of literature from both print and electronic sources. Key words for the literature search are: health care system, universal coverage, social health insurance, private health insurance, health financing, provider payment mechanism and country names (Canada, Mexico, Republic of Korea and the United Kingdom*).* Kutzin's conceptual framework will be applied as analytical tool for critical analysis of evidence based on OECD data. The functionality of each health systems will be analyzed based on these concepts; equity, sustainability, efficiency and feasibility. Data for the critical analysis will be sourced from the OECD Health Data 2008 dataset.

Findings from the extensive literature review will inform the study objectives most importantly in contributing to informing health reforms in LMICs that are considering implementing universal coverage policy.

1.0 Background

Most countries in the world are restructuring their health financing mechanisms to meet the health care needs of the population with financial risk protection dominating the health reform agenda (WHO 2005a). Financial risk protection against health care costs is the main objective of universal coverage defined as guaranteed 'access for all to appropriate promotive, preventative, curative and rehabilitative services at an affordable cost' (Carrin et al. 2008). Universal coverage means that everyone in the population has equal access to health care based on relative need irrespective of ability to pay, social status or place of residence.

For countries that are yet achieve universal coverage, the challenge is to shift the current unfair financing burden, which is largely borne by households through large direct out-of-pocket payments, to prepayment of health care through financing mechanisms such as social health insurance or general tax, which guarantee universal coverage (Savedoff 2004). Universality has been achieved in unique fashion in different countries. Some health systems are single payer systems financed entirely through mandatory contributions or general tax revenue; others combine the two prepaid financing mechanisms, sometimes with each financing mechanism covering different population groups. Additionally, within primarily SHI- or tax-funded health systems and/or mixed systems, private health insurance (PHI), another prepayment financing mechanism plays specific financing roles (Carrin, James 2004). These roles can be PHI offering principal, duplicate, substitutive, supplementary and complementary coverage (OECD 2004). PHI in most universal systems expands consumer choice by accelerating access to services that not covered by the public insurer or payer.

The majority of households in LMICs lack adequate FRP from the financial consequences of seeking health care. Evidence shows that they are getting into poverty and ill health as they struggle to keep afloat with out-of pocket spending on public and private health services. This occurrence commonly referred to as the 'the medical poverty trap', leads to long-term impoverishment; irrational drug use, reduced access to care and untreated morbidity (Whitehead, Dahlgren & Evans 2001). For most households, out-of-pocket payments through user fees or co-payments on publicly insured services create financial barriers with most foregoing care or cutting down on spending on other basic needs such as food and clothing to finance health care payments (Carrin et al. 2008, Xu et al. 2005).

The next section explores health financing in two low income countries, Ghana and Kenya, and one middle income country, South Africa, in the African continent. Kenya and South Africa are considering implementing universal coverage policy while Ghana implemented the policy in 2005. The following sections will give a detailed overview of health financing in Ghana, Kenya and South Africa.

1.1 Overview of health financing in three countries in the African continent

1.1.1 Ghana

According to National Health Accounts (NHA) estimates for 2007, Ghana spent 6% of its GDP on health. Private spending accounted for the largest share of the total health expenditure amounting to 63.9%. Most private spending was from out-of-pocket expenditures which accounted for 78.9% of private expenditure while 6% of private expenditure was from private health insurance. General government expenditure accounted for 36.1% of the total health expenditure, this includes donor funding which was 22.6% of the total health expenditure (NHA Ghana 2009).

In the colonial era, Ghana operated a tax-financed health system supplemented with user fees and external donor funds. On attaining independence in 1957, health care services at state-run health facilities were provided at no charge to the consumer (Nyonator, Kutzin 1999, Assensoh, Wahab 2008). However, in 1969 hospital fees were re-introduced when the Hospital Fees Decree later becoming the Hospital Fees Act in 1971, was endorsed. This was followed by the Hospital Fees Regulation of 1985, which established the "cash and carry system" whereby user fees had to be paid upfront for consultation, laboratory and diagnostic procedures, drugs, hospitalization, dental, surgical and medical services in government-run facilities. However, some populations groups were granted full or partial fee exemptions (Nyonator, Kutzin 1999).

The cash and carry system came into full effect at the time the international banking institutions introduced Structural Adjustment Program (SAP) in Ghana. One conditionality of the SAP was for government to cut back on public spending. Accordingly, the budgetary allocation to the health sector declined gradually from 10% of government resources in 1982 to a low 1.3% by 1997 (Konadu-Agyemang 2000). To supplement revenue shortfalls as result of reduced budget transfers, government-run facilities intensified the use of user fees, which shifted the burden of financing more directly to households with many foregoing health care

due to the financial barrier. In addition, most health care facilities engaged in unfair revenue generating practices and under the table payments to providers (Nyonator, Kutzin 1999). Nevertheless, user fees for maternal care were abolished in 2005 (Witter et al. 2007).

It is against the background of excessive out-of-pocket payments and inadequate FRP that the national health insurance (NHI) was introduced. Parliament passed the universal coverage law in 2003 but implementation was only initiated in March 2005 (Assensoh, Wahab 2008) The NHI comprises multiple schemes catering for both the formal and informal sector. The Mutual Health Insurance Schemes (MHIS) in each district collect contributions directly from the informal and receive contributions for formal sector workers living in their district via the Social Security and National Insurance Trust (SSNIT) (McIntyre 2007). A recent publication by McIntyre et al. (2008) indicated that 55% of the population in Ghana was covered under the NHI by December 2007.

1.1.2 Kenya

According to the NHA estimates in 2007, the expenditure on health as a percentage of GDP was 4.7%. General government expenditure was 48.4% of the total health expenditure, while private spending was 51.6%. Social security systems accounted for 8% of the public health expenditure. Nearly 7% of the private expenditure was from private insurance and 80% from direct payments. Donor funding (which in the NHA is incorporated under government expenditure) accounted for 14.9% of the total health expenditure (NHA Kenya 2009). Most donor funds are programme-oriented directed to malaria control and HIV/AIDS preventative services. Despite declaring HIV/AIDS a national disaster in 1999 (Ministry of Health 2006) government spending on HIV/AIDS treatment has not matched funding from donor and household sources. Government's contribution is only 20.3% of HIV/AIDS expenditure, compared to donor's 51% and household's 26.3% from direct out-of-pocket payments (USAID 2007).

After independence in 1963, access to health services was free at the point of use in public sector facilities in the tax-funded health system. Reduced economic growth coupled with market-oriented policies introduced in the early eighties resulted in health financing policy changes through the introduction of user fees at all government-run facilities (Mwabu, Mwangi 1986). However, pressure from various interest groups led to the abolishment of user fees for out-patient care in 1990 but the fees were re-introduced in 1992 as treatment fees

(Collins et al. 1996). In 2000, user fees for maternity care at public sector facilities were abolished. In other developments, with effect from July 2004, government-run dispensaries and health centres are required to provide health services at no charge to the patient except for a minimum registration fee. Fee exemptions are granted for the poor and children aged below five years and those ailing from malaria and tuberculosis (Chuma et al. 2009).

In spite of these safety nets at public sector facilities, households lack adequate FRP as direct payments constitute a significant share of private spending. Most of this spending is driven by utilization of services from the parallel delivery system, i.e in private hospitals, clinics and pharmacies. With respect to prepayment of health care, PHI covers the rich as the high cost and risk rating of premiums locks out the majority of the population. The National Hospital Insurance Fund (NHIF), a mandatory scheme for formal sector employees offers inpatient cover for these employees and their dependants (Carrin et al. 2007). The informal sector can enrol in the scheme on a voluntary basis where a monthly contribution flat rate charge of KES 160 (USD 2.13) is required to cover an entire nuclear family. The latest inclusion to prepayment of care is through community based health insurance schemes that were introduced in 1999. So far an estimated 32 schemes countrywide insure 170 000 beneficiaries (Mathauer, Schmidt & Wenyaa 2008).

There are gaps in coverage and inequities as formal sector employees have some level of financial protection from hospitalization costs through the NHIF while the rest of the population (without PHI or not enrolled to CBHIs) does not have adequate FRP from health care costs. To ensure equity in financing and reduce the out-of-pocket financing burden, government proposed the transformation of NHIF, into a National Social Health Insurance Fund (NSHIF) in order to achieve universal coverage. The NSHIF Bill passed preliminary readings in parliament in 2004, but amendments are yet to be made to pass the bill into law. The NSHIF would be financed through income-rated contributions for employees and employers in the formal sector, flat-rated monthly contributions for the self-employed and subsidized contributions for the poor and other vulnerable groups. Coverage of 60-80% is envisaged within nine years after implementation of the policy (Carrin et al. 2007).

1.1.3 South Africa

South Africa's health system is two tiered consisting of a tax-funded public sector delivering health services to the majority of the population and a private sector providing health services to approximately 20% of the population financed through private health insurance and out-of-pocket payments (McIntyre et al. 2006). The total expenditure on health as a percentage of the gross domestic product (GDP) was 8% in 2007 (NHA 2009). Private health spending accounted for 61.6% of the total health expenditure while public expenditure was 39.4%. About 78.1% of the total private spending was from private health insurance and 17.5% from out-of-pocket expenditure. Social security contributions accounted for 3.7% of the total expenditure on health (NHA 2009). The provincial health departments are the main financing intermediaries in the public sector while medical schemes (private health insurance companies) take the single largest share of private sector expenditure, accounting for 38% and 46% of the total expenditure on health, respectively (McIntyre et al. 2007).

The South African health system has a substantial public-private mix and a severely fragmented medical schemes' industry. Inequities in financing are partly attributable to the heavy subsidization of medical scheme contributions for civil servant who account for a quarter of medical scheme beneficiaries. Government spends 12 times more on a civil servant to enrol to a medical scheme than it spends on an individual to use a public sector facility. The other inequity is from the tax rebates offered for private health insurance (McIntyre et al. 2006). Given that most medical scheme beneficiaries are high income earners, the subsidy not only reduces potential income tax revenue but exacerbates the existing health inequities by giving tax relief to those that least need it. In examining the degree of the public-private mix in utilization of health services, 15% of the total population are medical scheme beneficiaries accessing care almost entirely at private sector facilities. Additionally, 21% of the population not covered by medical schemes use private sector facilities on an out-of-pocket basis for primary health care but are dependent on the public sector for inpatient care. The largest proportion of the population, 64.2%, is dependent on the public sector for both primary health care and secondary care (McIntyre et al. 2007). Evidently, a substantial percentage of the population is not protected from the financial consequences of ill health.

The debate on implementing a universal coverage policy has been ongoing since the first democratic election in 1994. The newly elected African National Congress (ANC) government had incorporated early proposal for a social insurance system in its National

Health Plan. Subsequent proposals followed in 1995 and 1997. Additionally, the Taylor Committee of 2002 explicitly proposed a NHI system that would be funded through multiple financing intermediaries through general revenue funds and private health insurance but eventually phase out these multiple pools to form an integrated NHI funding system (McIntyre et al. 2007). In 2002, the National Department of Health (NDH) established a Ministerial Task Team to review the Taylor proposal. The MTT recommended the implementation of a SHI with major changes to the benefit package. One was the introduction of a standardized basic benefit package (BBP) similar for all medical schemes and the public insurer. The benefit package would cover all primary health care services in addition to the existing PMBs prescribed for medical schemes. The MTT proposal is illustrated by McIntyre et al. (2007:82-84). So far six committees have deliberated on how the universal system should be financed to ensure adequate FRP and equity in access. Consensus is yet to be reached.

1.2 Problem statement

There is a global imbalance in health spending between high-income and LMICs. The global health expenditure is concentrated in high-income countries, yet they bear the least global disease burden and are less populous. On the contrary the health expenditure in the highly populated LMICs, where 84% of the world population resides, is 12% of the global health expenditure. Additionally, LMICs bear 90% of the global disease burden. The greater percentage of the health spending in LMICs is from out-of-pocket expenditure, which accounts for between 40-60% of the health spending in LMICs compared to about 20% in high-income countries (Gottret, Schieber 2006). Without doubt, households in LMICs bear the greatest health financing burden given the excessive payment of health care on an out-of-pocket basis. It is against this background of inequities in the financing burden and widespread impoverishment and catastrophic health expenditures from excessive out-of-pocket spending that led to the World Health Assembly Resolution in 2005 calling for Member States to introduce and intensify the prepayment of health care by introducing social health insurance (WHO 2005b). Most LMICs are therefore considering introducing universal coverage policies so as to FRP, but there is a lot to learn from countries that have long experience of universal systems, most being OECD countries.

1.3 Research question

What 'best practice' characteristics of health financing policy in four selected Organization for Economic Co-operation and Development (OECD) countries are applicable in contributing to the development of universal coverage policy in LMICs?

1.4 Justification

Implementation of a universal coverage policy ought to be an informed process, drawing on evidence from health systems that have experience in running universal systems. The present study intends to provide insights from four selected OECD countries by considering best practice and shortcomings of these universal health systems.

Review of international experience is particularly helpful in identifying approaches that have ensured financial risk protection and equity in access to care when needed for citizens of the four selected countries.

1.5 Aim

To undertake a comparative analysis of selected OECD countries which have achieved or are in transition to universal health coverage with the intention of deriving lessons that can inform the development of universal coverage policy in LMICs. The findings will provide insights into best practice in these countries and key factors that have made financial risk protection and equity in access achievable.

1.6 Objectives

- To undertake an extensive literature review of health systems in selected OECD countries.
- To critically analyze the health systems of four OECD countries with respect to the functions of revenue collection, fund pooling, purchasing and provision.
- To analyze data for these four countries from a comprehensive dataset, the OECD Health Data 2008, which consists of a variety of health indicators in the OECD countries
- To critically assess, through analyzing trends of key health system indicators (health expenditure levels, health care financing and information from the literature), the

equity, efficiency and sustainability of purchasing and provision of health care services in each country.

2.0 Methodology

2.1 Study Design.

The research takes a desk-based approach. The key findings of the literature will be presented using a case-study approach, a research strategy that gives better insights into divergent issues present within single settings making discoverability of issues within a given area of interest achievable (Guy 1994). The main strength of a case study design is that it gives a contextual analysis of data gathered from multiple sources through various collection techniques (qualitative or quantitative methods) using tools such as surveys and document review.

Fundamental to this study, is the review of documented evidence from literature and analysis of data provided in the Organization for Economic Co-operation and Development (OECD) health dataset, using an analytic matrix to facilitate in understanding the dynamics of the health financing functions of each of the selected health systems. Drawing out themes from these diverse health care systems is only achievable through this approach which explores and assesses a range of issues including the organizational structure in a given system. The use of an analytic template (discussed in following sections) to guide the analysis instead of going through the critical assessment arbitrarily, allows key lessons to be derived in a systematic way.

Often, conclusions drawn from a case-study analysis are only specific to that area of study and not generalizable to other settings (Guy 1994). In this study, all the selected health care systems have unique organizational and management structures; therefore, lessons derived from one country are specific to that health care system and not transferable. Nevertheless, useful lessons can be drawn from the cross-country analysis and their appropriateness assessed within the context of each country wishing to pursue universal coverage.

2.2 Population and sampling.

2.2.1 Population

The population of interest is all countries that have achieved UC or are in transition to UC. Most universal health care systems are in OECD countries.

2.2.2 Criteria for sampling

The first selection decision restricted the sample to OECD countries based on the availability of quality data in these countries particularly the comprehensive OECD health information. This was seen as important in order to complement information on the nature of the health systems under evaluation from the literature review. The OECD dataset shows consistent data collected over different time periods based on health care indicators such as health care financing, expenditure on health, health care utilization, health outcomes, pharmaceutical industry, non-medical determinants of health, health care resources and a range of other health-related indicators. However for this study only the economic indicators (health care financing and expenditure on health) will be used. See Appendix 3 for a detailed explanation of the variables.

Secondly, review countries are drawn from different continents: Asia (Republic of Korea), Europe (United Kingdom), South America (Mexico) and North America (Canada). The exclusion of countries from Africa was due to the absence of a universal system in the continent and lack of reliable data attributable to undeveloped information systems in these countries. Although Ghana passed legislation to introduce a national health insurance system in 2003, universal coverage has not yet been achieved.

The inclusion criterion was thus:

- Countries that have achieved or are in transition to universal coverage.
- OECD countries because of availability of data.
- Selection drawn from different continents.
- Preference was given to countries that have long experience of universal coverage.

Of the selected health care systems, three (Canada, Republic of Korea and the United Kingdom) have achieved universal coverage and one (Mexico) is in the transition to universality.

From preliminary investigation, the four health systems have achieved UC differently. Canada and the United Kingdom achieved universal coverage through a single-payer system financed primarily from general tax revenue with an element of mandatory contributions (Marchildon 2005, The European Observatory on Health Care Systems 1999). The Republic of Korea achieved universal coverage through a multiple payer system prior to the integration reform in 2000. By 1998 there were 227 insurance societies catering for the self-employed, 142 for industrial workers and a single scheme, the Korean Medical Insurance Corporation (KMIC) for civil servants and teachers in private schools (Kwon 2003). The Republic of Korea was particularly chosen for this study because of attainment of UC under a severely fragmented multiple payer system. It would be interesting to identify factors that made UC feasible.

Mexico is the outlier of the four countries but it was chosen for this comparative analysis because besides being one of only three OECD countries that do not run universal systems, the other two are Turkey and the United States (OECD 2009), Mexico implemented universal coverage policy in 2004. Additionally, Mexico is an OECD country characterized by the realities of most low to middle income countries (OECD countries fall under the high-income and upper-middle income bracket) in particular, the wide income and social inequalities and the complex epidemiological transition which presents a challenge to the health system in responding to diseases of poverty on hand and those of lifestyle on the other. Lastly, the Mexican health system is a multiple-payer system with separate social health insurance schemes for formal and informal sector employees. Pooling or risks through various employer-based mandatory schemes has ensured full coverage for formal sector workers while the voluntary contribution arrangement for the informal sector to join 'mandatory' schemes has impeded full population coverage for this group. The recently introduced scheme for the informal sector, *Seguro Popular*, however intends to insure most of the informal sector by 2010 through an incentive-driven contribution model (Frenk et al. 2006). Therefore, Mexico provides an interesting case study especially in identifying the factors that led to the passing of the universal coverage law and possible factors that could have hindered its achievement of UC.

The selection of Canada and the United Kingdom was based on their long experience as tax-funded health care systems albeit with different organizational structure. The United Kingdom is often quoted as the ideal National Health Services (NHS) model. Most NHS-type

systems are publicly financed through general taxation with dominance of public providers in health care provision. There is often minimal private contracting with publicly raised revenue and strict regulation of private health insurance, since financial flows from PHI hardly ever goes to public providers. Canada does not fall under the NHS-type criteria though it is for the most part tax-financed. Provision in this health system is dominated by not-for-profit private providers. Therefore, the similarity in the two in terms of financing and the differences with respect to service delivery and PHI regulation makes the two health systems interesting case studies.

Therefore, exploring these divergent health financing themes from the selected health care systems, especially the differences in the financing approaches that have made universal coverage attainable is crucial in drawing out lessons to inform the process in LMICs.

2.3 Measurement

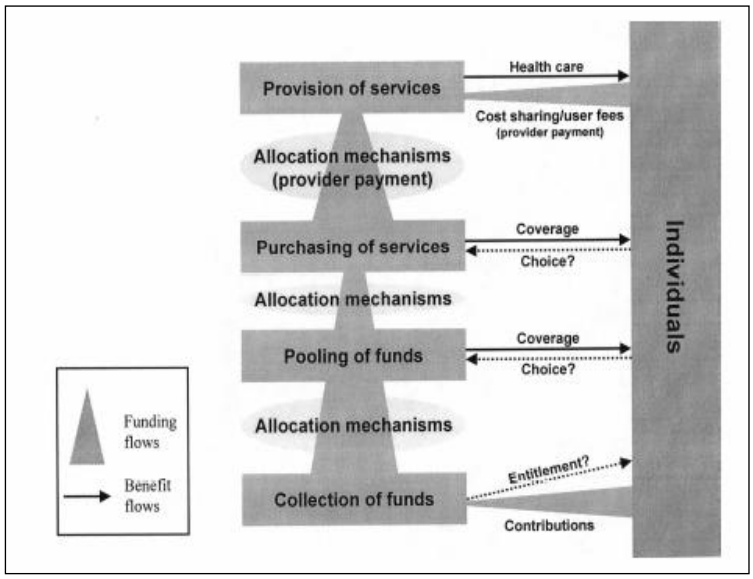
2.3.1 Instruments

2.3.1.1 Review of literature

The review will explore empirical evidence from four OECD countries that have achieved universal coverage or are transiting to universality. Evidence from *online sources* will be sourced from peer-reviewed journals and from grey literature such as manuscripts, policy documents, policy briefs and reports. Other material will be sourced from books and print journals. The evidence gathered from all these sources is largely descriptive. The main search engine to search for the online publications is Google Scholar. The key *databases* are Academic Search Premier, Medline, Science Direct and Pub Med. Useful websites are the World Health Organization, Pan-American Health Organization and the European Observatory of Health Care Systems websites. The key words for the search were: health care system, universal coverage, social health insurance, private health insurance, health financing, provider payment mechanism and country names (Canada, Mexico, Republic of Korea and the United Kingdom).

2.3.1.2 The Kutzin framework

An analytical tool that can be used to evaluate the financing of health care systems, a framework developed by Kutzin will be applied in analyzing each of the selected health care systems. The conceptual framework will be applied in reviewing the empirical evidence from literature and analyzing data from the OECD database. The framework is unique in that it evaluates the health system by combining, and not considering separately, health policy objectives and the health financing functions (revenue collection, pooling and purchasing). The framework considers the policy objective alongside the health financing functions to determine how the overall function of health insurance described as 'access to care with financial risk protection' by Kutzin (2001) has been attained in a given health care system. Additionally, the framework distinctly maps out three allocation mechanisms and two points of payments (contribution prepayment and direct payments or cost-sharing at the point use) and two- or multi-sided subsidies to fund pools, purchasing organizations and providers of health services as depicted in Figure 1.



(Source Kutzin 2001:174).

Figure 1: Kutzin's framework illustrating health system financing and population links.

Furthermore, the framework defines conceptual features of health financing namely; funding sources, contributing mechanisms, collecting organizations, pooling organizations, allocation mechanisms and purchasing organizations, into categories with distinct characteristics as illustrated in the matrix Table 1. In addition to factors discussed above, Kutzin's framework is preferred for the present comparative analysis because of its ease in applicability in analyzing both public and private financing and the respective organizations under each sector. The components of the conceptual framework developed by Kutzin are condensed into a matrix (Table 1) that will aid in the critical analysis of literature and data based the concepts of equity, sustainability, efficiency and feasibility.

The Kutzin matrix is the tool, which will guide in the analysis of OECD data and synthesizing evidence from the literature. The matrix depicted in Table 1 incorporates the key features of the Kutzin framework alongside the concepts of equity, sustainability, efficiency and feasibility which are often used to assess functionalities of health systems. The analysis using the matrix will not be descriptive but rather will involve a concise and critical assessment of the health system to determine if the equity, sustainability, efficiency and feasibility goals have been met while exploring possible factors that have made attainment of these goals possible.

T**able 1: The Matrix for analysis**

	Equity	**Efficiency**	**Sustainability**	**Feasibility**
Revenue Collection				
Source of funds				
Contributions mechanisms				
Collecting organizations				
Pooling of funds				
Coverage & composition of pools				
Allocation mechanisms				
Purchasing of services				
Benefit package				
Provider payment mechanisms				
Provision of services				

2.3.1.3 Validity and reliability of instruments

The reliability of Kutzin's conceptual framework in evaluating healthcare systems is credited by the fact that the framework yields similar conclusions when the template is applied in evaluating published literature in a consistent manner. The accuracy or validity of the framework is based on its mainstream applicability in assessing functionality of health systems. For instance, in the comprehensive review of health financing in LMCIs, McIntyre (2007) applied this conceptual framework alongside the condensed matrix. Additionally, the conceptual framework was used by McIntyre et al. (2008) in the assessment of health financing in three African countries namely; Ghana, South Africa and the United Republic of Tanzania.

2.4 Data analysis

Data is sourced from Organization of Economic Co-operation and Development (OECD) Health Data 2008. This is a database containing data on key indicators of health care systems in 30 OECD reflecting on the performance of each health system. The main variables in the dataset are: health status, health care resources and utilization, long-term care resources and utilization, health expenditure, pharmaceutical consumption and sales by the pharmaceutical

industry and data on non-medical determinants of health and general data on demographic and economic references. These health system indicators show how the health system is functioning at present and its performance in past periods of time. The assessment of for instance expenditure levels, utilization rates, health employment and remuneration, investment in health services among other indicators, over given timelines will give an indication of which countries are performing better than others as far as those indicators are concerned. Emphasis will be placed on these variables: health financing and health expenditure and their indicators outlined **Appendix 3**. This coupled with the extensive literature review will highlight the contributory factors to good or bad performance in aspects of the health care systems in the review countries.

2.5 Ethics

Ethics approval will be sought from University of Cape Town Ethics Research Committee. As this is a desk-based review, drawing only on public domain secondary sources, there are no major ethical implications.

2.6 Stakeholders

Parties that may be interested in findings from this study are:

- School of Public Health, University of Cape Town
- National Research Foundation (NRF)
- Health sector policy makers

2.7 Reporting and implementation

The study will provide evidence-based findings that can inform the development of universal coverage policies in developing countries. Dissemination seminars will be organized and the stakeholders mentioned above will be invited to discuss the findings of the study. The report will be published in a peer-reviewed journal and presented at local conferences and seminars.

References 1

Assensoh, A.B. & Wahab, H. 2008, "A Historical-Cum-Political Overview of Ghana's National Health Insurance Law", *African & Asian Studies*, vol. 7, no. 2, pp. 289-306.

Carrin, G. & James, C. 2004, *Reaching universal coverage via social health insurance: key design features in the transition period,* Discussion Paper 2, *World Health Organizatio*n.

Carrin, G., Mathauer, I., Xu, K. & Evans, B.D. 2008, "Universal coverage of health services: tailoring its implementation.", *World Health Organization.Bulletin of the World Health Organization,* vol. 86, no. 11, pp. 857.

Carrin, G., James, C., Adelhardt, M., Doetinchem, O., Eriki, P., Hassan, M., van, d.H., Kirigia, J., Koemm, B., Korte, R., Krech, R., Lankers, C., van Lente, J., Maina, T., Malonza, K., Mathauer, I., Okeyo, T.M., Muchiri, S., Mumani, Z., Nganda, B., Nyikal, J., Onsongo, J., Rakuom, C., Schramm, B., Scheil-Adlung, X., Stierle, F., Whitaker, D. & Zipperer, M. 2007, "Health financing reform in Kenya - assessing the social health insurance proposal", *South African Medical Journal = Suid-Afrikaanse Tydskrif Vir Geneeskunde,* vol. 97, no. 2, pp. 130-135.

Chuma, J., Musimbi, J., Okungu, V., Goodman, C. & Molyneux, C. 2009, "Reducing user fees for primary health care in Kenya: Policy on paper or policy in practice?", *International Journal For Equity In Health,* vol. 8, pp. 15-15.

Collins, D., Quick, J.D., Musau, S.N., Kraushaar, K. & Hussein, I.M. 1996, "The fall and rise of cost sharing in Kenya: the impact of phased implementation", *Health policy and planning,* vol. 11, no. 1, pp. 52-63.

Frenk, J., Gonzalez-Pier, E., Lezana, A.M. & Knaul, M.F. 2006, "Comprehensive reform to improve health system performance in Mexico.", *The Lancet,* vol. 368, no. 9546, pp. 1524.

Gottret, P. & Schieber, G. 2006, *Health Financing Revisited: A Practitioner's Guide*, World Bank, Washington.

Guy, G.G. 1994, "Integrating case study and survey research methods: an example in information systems", *European Journal of Information Systems,* vol. 3, no. 2, pp. 112-126.

Konadu-Agyemang, K. 2000, "The Best of Times and the Worst of Times: Structural Adjustment Programs and Uneven Development", *Professional Geographer,* vol. 52, no. 3, pp. 469.

Kwon, S. 2003, "Health care financing reform and the new single payer system in the Republic of Korea: Social solidarity or efficiency?", *Internal Social Security Review,* vol. 56, no. 1, pp. 75-94.

Marchildon, P.G. 2005, *The European Observatory on Health Systems and Policies. Health Systems in Transition, Canada*.

Mathauer, I., Schmidt, J. & Wenyaa, M. 2008, "Extending social health insurance to the informal sector in Kenya. An assessment of factors affecting demand", *The International journal of health planning and management*, vol. 23, no. 1, pp. 51-68.

McIntyre, D., Garshong, B., Mtei, G., Meheus, F., Thiede, M., Akazili, J., Ally, M., Aikins, M., Mulligan, J-A., Goudge, J. 2008, "Beyond fragmentation and towards universal coverage: insights from Ghana, South Africa and the United Republic of Tanzania", *Bulletin of the World Health Organization*, vol 86, no. 11, pp. 817-908.

McIntyre, D. 2007, *Health Financing. Learning from experience: Health care financing in low- and middle-income countries*, 1st edn, Global forum for health research, Geneva.

McIntyre, D., Gilson, L., Wadee, H., Thiede, M. & Okorafor, O. 2006, "Commercialization and extreme inequality in health: the policy challenges for South Africa", *Journal for international development*, vol. 18, pp. 435-446.

McIntyre, D., Thiede, M., Nkosi, M., Mutyambizi, V., Castillo-Riquelme, M., Gilson, L., Erasmus, E. & Goudge, J. 2007, *A Critical Analysis of the current South African health system*. SHIELD Package Report No 1.

Ministry of Health 2006, *Facts and Figures at a glance. Health and health related indicators*, Ministry of Health, Nairobi, Kenya.

Mwabu, G.M. & Mwangi, W.M. 1986, "Health care financing in Kenya: a simulation of welfare effects of user fees", *Social science & medicine (1982)*, vol. 22, no. 7, pp. 763-767.

NHA 2009, 2009-04-02-last update, *National Health Accounts* [Homepage of World Health Organization], [Online]. Available: http://www.who.int/nha/country/zaf.pdf. [2009, 7-11] .

NHA Ghana 2009, 2009-04-02-last update, *National Health Accounts*. Available: http://www.who.int/nha/country/gha/en/ [2009, 11-15] .

NHA Kenya 2009, 2009-04-02-last update, *National Health Accounts*. Available: http://www.who.int/nha/country/ken/en/ [2009, 07-11] .

Nyonator, F. & Kutzin, J. 1999, "Health for some? The effects of user fees in the Volta Region of Ghana", *Health policy and planning*, vol. 14, no. 4, pp. 329-341.

OECD 2009, *Expensive health care is not always the answer, says OECD's Health at a Glance* [Homepage of OECD], [Online]. Available: http://www.oecd.org/document/14/0,3343,en_2649_34631_44216846_1_1_1_1,00.html [2009, 11-28].

OECD 2004, *Proposal for a taxonomy of health insurance*. OECD Study on Private Health Insurance

Savedoff, W. 2004, *Tax based financing for health system: Options and experiences*, Discussion Paper 4, World Health Organization, Geneva.

The European Observatory on Health Care Systems 1999, *Health Care Systems in Transition: United Kingdom*. European Observatory on Health Care Systems.

USAID 2007, 06-08-2007-last update, *Kenya National Health Accounts (2001-2002).* [Homepage of Agency for International Development (USAID)], [Online]. Available: http://www.healthsystems2020.org/content/resource/detail/902/ [2009, 15-10] .

Whitehead, M., Dahlgren, G. & Evans, T. 2001, "Equity and health sector reforms: can low-income countries escape the medical poverty trap?" *Lancet*, vol. 358, no. 9284, pp. 833-836.

WHO 2005a, *Social health insurance: Selected case studies from Asia and the Pacific*. World Health Organization

WHO 2005b, *Sustainable health financing, universal coverage and social health insurance (WHA 58.33).* Available: http://apps.who.int/gb/ebwha/pdf_files/WHA58/WHA58_33-en.pdf [2009, 07-21].

Witter, S., Arhinful, D.K., Kusi, A. & Zakariah-Akoto, S. 2007, "The Experience of Ghana in Implementing a User Fee Exemption Policy to Provide Free Delivery Care", *Reproductive health matters*, vol. 15, no. 30, pp. 61-71.

Xu, K., Evans, D., Carrin, G. & Aguilar-Rivera, A.M. 2005, *Designing health financing systems to reduce catastrophic health expenditures: Technical briefs for Policy Makers*. World Health Organization.

PART B: LITERATURE REVIEW

1.0 Introduction

This review explores empirical evidence from health care systems in four OECD countries that have attained (or are transiting to) universal coverage. This was done through an extensive review of published literature from print and electronic sources. This review focuses primarily on health financing in the selected health care systems, with two broad objectives: to undertake a comparative analysis of selected OECD countries that have achieved or are in transition to universality; to derive lessons or best practice in selected universal health systems and key factors that have made financial risk protection (FRP) and equity in access achievable.

1.1 Focus

Health financing mechanisms in various countries are being re-structured to offer FRP for all citizens (WHO 2005b) with the intention of avoiding catastrophic expenditures and impoverishment from seeking care. FRP and equity in access are the fundamental goals of universal coverage. Within universal systems, every individual has equal access to health care based on relative need irrespective of ability to make health payments, social status or geographical location. Most countries are strengthening or introducing policies to move to universal systems which offer FRP, following the World Health Assembly Resolution in 2005 by Member States.

1.2 Search Methodology

Evidence from *online sources* was gathered from peer-reviewed journals, and from grey literature such as manuscripts, policy documents, policy briefs and reports. Other sources were books and print journals. The evidence gathered from all these sources was largely descriptive. The main search engine for the online publications was Google Scholar while key *databases* from which evidence was gathered were EBSCOhost via Academic Search Premier and Medline, Science Direct and Pub Med. Useful websites from which additional information was sourced were the World Health Organization, Pan-American Health Organization and the European Observatory of Health Care Systems websites. The key words for the search were: health care system, universal coverage, social health insurance, private health insurance, health financing, provider payment mechanism and country names (Canada, Mexico, Republic of Korea and the United Kingdom).

1.3 Structure of the paper

There are three main sections of this review: the first section defines the concepts used to describe and assess health financing in the selected countries; the second section focuses on the key health financing sub-functions; and, the third section reviews the selected health systems. For each country, a brief historical background on the health system's progression to universal coverage is provided; key health reforms instituted after universal coverage are described, and key health financing elements in the health system are discussed.

1.4. Concepts

1.4.1 Universal coverage

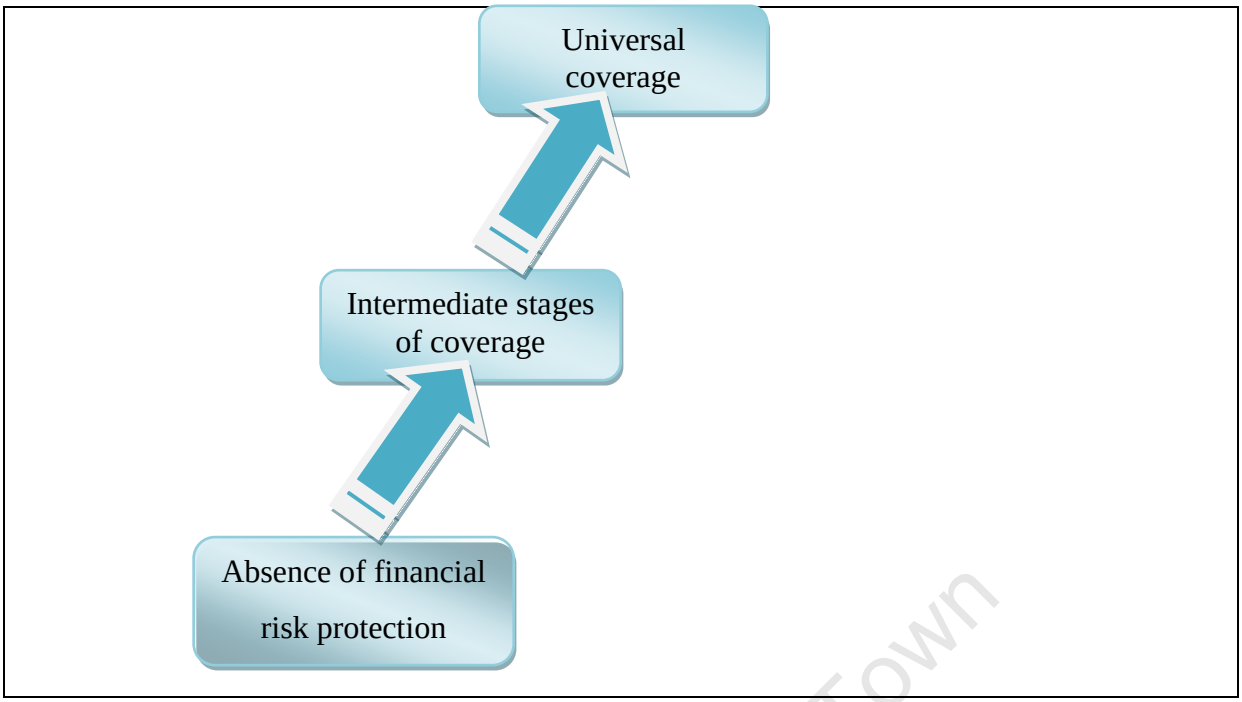
Universal coverage is defined as "access for all to appropriate promotive, preventative, curative and rehabilitative services at an affordable cost" (Carrin et al. 2008). The definition encompasses two broad components: financial risk protection defined as "access to adequate healthcare for all at an affordable price" (Carrin, James 2005) and; equity in access to needed health services (Carrin, James & Evans 2005, Mills 2007). To attain adequate levels FRP while upholding equity in access involves three key goals have to be met: maximization of prepayment financing mechanisms to redistribute the financing burden from high- to low-income groups; attaining the largest possible risk pool for maximum cross-subsidies; and, establishing purchasing plans that ensure health services are equitably and efficiently delivered (Gottret, Schieber 2006). When universal coverage has been attained with adequate levels of financial protection (some health systems have achieved attained universal coverage without adequate FRP), households are protected from impoverishment and catastrophic expenditures. Financial catastrophe associated with making health payments occur when a great proportion of health services are only accessible on an out-of-pocket basis; where there is a low ability to pay for health care within the population; and, where there is a lack of risk pooling through prepayment (Xu et al. 2005).

In addition to FRP and equity in access, universal coverage also incorporates the concept of equity in financing (Carrin, James & Evans 2005). This means that under UC there are cross-subsidies from high-income to low-income groups (income cross-subsidies) and the healthy to the sick (risk cross-subsidies). With respect to revenue-generating mechanisms, equity in financing is upheld when a larger proportion of households are covered through prepaid financing mechanism which promotes adequate cross-subsidies (Schieber et al. 2006). Hence

the larger the population covered by an integrated financing mechanism, the larger the degree of risk-pooling[1] and the greater the cross-subsidies. Ultimately, the financing burden is equitably spread across different individual households since risk are pooled across a large societal risk pool (Carrin, James 2005). Moreover, non-financial barriers to care (Mills 2007) such as the broadness of health services covered (Carrin et al. 2008) and the organizational structure of health care systems in terms of resource allocation fit into the broader definition of FRP. The latter aspect touches on the impact of geographical barriers, cultural barriers, issues dealing with quality of care, provider behaviour and attitudes that could hinder utilization of health services by certain vulnerable population groups such as the indigent and women (Mills 2007).

Universal coverage is achieved through two key revenue generating mechanisms: general taxation and social health insurance. As illustrated in Figure 2, universal coverage occurs incrementally. In the early stages, direct payment of health care dominates health financing but this is gradually decreased as prepayment for health care dominates financing through different prepaid financing mechanisms catering for various population groups such as community based health insurance for rural populations, mandatory contributions for formal sector employees and private health insurance performing a defined financing role in the health system. On attainment of universal general tax revenue and social health insurance and a mix of the tax- financing and other types of health insurance are the main prepayment financing mechanisms (Carrin, James & Evans 2005).

[1] Defined as the "collection and management of financial resources so that predictable individual financial risks become predictable and are distributed among all members of a pool" (Gottret, Schieber 2006).



Source (Carrin, James & Evans 2005:2)

Figure 2: Financing options in the transition to universal coverage

1.4.2 Equity

Two approaches commonly used in determining if a health system is meeting its equity goals are the evaluation of equity in financing and in utilization of services. Equity in financing implies that financial contributions to funding health services should be based on ability to pay. The progressivity of each financing source determines the degree of FRP (Kutzin 1995) while the choice of the revenue collecting mechanism (whether prepaid or direct payment mechanism) determines the degree of progressivity or regressivity of the respective funding source (Hussey, Anderson 2003). With progressive funding sources, high-income groups contribute a greater share of income towards health than low-income groups, while for regressive funding sources; lower income groups contribute a larger proportion of their income. For proportional financing mechanism, everyone in the population makes equal percentage payments towards health, but in absolute terms wealthier households tend to pay more (McIntyre 2007; Hussey, Anderson 2003). Therefore, an inequitable financing mechanism is one that shifts the health financing burden to those with lesser ability to pay rendering the financing mechanism regressive. Furthermore, inequities in financing arise by offering tax rebates to private activities such as the subsidies to subscribers of private health insurance, most being high-income groups (McPake, Kutzin 1997). The potential revenue lost from the subsidy can instead be used to augment the general revenue fund pool to finance a broader range of health services accessible to wider proportion of the population.

The principle of equity in utilization is modelled on the idea that "health services and resources should be distributed according to need not according to other factors such as people's ability to pay for services" (Kutzin 2008:5). Therefore, the utilization of health services should be reflective of populations' health need rather than income, insurance status, age, gender or place of residence (McPake, Kutzin 1997; Kutzin 1995). This includes the equitable distribution of health personnel, facilities, budget and utilization per capita in different geographical areas (Kutzin 1995). An inequitable health system is one where certain geographical areas are constrained with respect to health care resources and/or where someone can only access a service if they are able to pay for it.

1.4.3 Efficiency

This is evaluated as the extent to which technical and allocative efficiency goals are met. The concept of technical efficiency refers to the link between resources and health outcomes implying the "maximum number of health services that can be provided within a specific budget or a measure of the lowest cost needed for each health service to function without compromising quality of care" (McIntyre 2007).[2] Technical inefficiencies arise when the unit costs of providing a service are exceedingly high (Kutzin 1995).

Allocative efficiency on the other hand deals with combining the right health care programmes or interventions to maximise the health of society (Palmer, Torgerson 1999). This entails the allocation of resources to activities that produce highly valuable health outcomes in a cost-effective manner (McPake, Kutzin 1997). Allocative inefficiencies in health systems are likely to arise when referral systems are weakly structured leading to overcrowding in hospitals for services that could have been provided quicker and in less costly environments (Kutzin 1995).

The other important concept as relates to efficiency is administrative efficiency. This type of efficiency ought to focus on "minimizing duplication of functional responsibility for administering the health financing system" argues Kutzin (2008:7) The author further argues that administrative efficiency should not simply over emphasis on decreasing administrative

[2] A technically efficient allocation is achieved when there is improvement in health outcomes from a given set of resource inputs (Palmer, Torgerson 1999) or use of minimum costs by limiting misuse of inputs or resources (McPake, Kutzin 1997).

costs but rather on maximizing the cost-effectiveness of policy goals that involve administrative functions.

1.4.4 Sustainability

Two aspects, financial and institutional, are used to determine the sustainability of the diverse functions in health financing. Funding mechanisms should have the potential to generate more funds over time to meet the growing health care needs and demands in the population. Therefore, financial sources that are vulnerable to fluctuations in revenue generation over given periods of time should be avoided and preference given to revenue sources that show consistency in revenue generation in the long-term (McIntyre 2007). Therefore, a financially sustainable financing mechanism is one that maintains a sufficient level of finance over time without necessitating supplementary funds from external sources.[3] The other sustainability aspect relates to institutional sustainability which implies that the organizational structure in a given health system, mainly the managerial capacity, should be adequate in sustaining health reforms and ensuring changes in the health system are managed effectively (Kutzin 1995).

1.4.5 Feasibility

In evaluating feasibility, the stand taken by various stakeholders in the health sector should be examined to verify their support or opposition to a given policy issue, which could influence implementation of the policy. With respect to financing, the support or opposition for a given financing strategy by various interest groups, and the availability of technical and administrative capacity to implement the strategy (McIntyre 2007) is an issue that also impacts on feasibility.

1.5 Health financing

Health financing comprises three main sub-functions: revenue collection, pooling of funds and purchasing of services. The main objectives of health financing are: to raise "*sufficient* and *sustainable* revenue in an *efficient* and *equitable* manner" (Schieber et al. 2006:226); to provide an essential package of health services in order to offer adequate financial protection from unforeseen catastrophic expenditures; and, to manage pooled revenue to allow for

[3] Schieber et al. (2006) describes fiscal sustainability is attainable when "over a specific period, the managing entity will generate sufficient resources to fund full costs of a particular program, sector, or economy, including the incremental service costs associated with new investments and the servicing and repayment of external debt"

health risks to be equitably and efficiently spread; and, to purchase health services to achieve the broad objective of technical and allocative efficiency (Schieber et al. 2006).

1.5.1 Revenue collection

Revenue collection deals with the financial contributions that fund health care services, the structure of these financing contributions, and the organizations or agencies that collect the contributions (Kutzin 2008, McIntyre 2007). Health financing revenue is drawn from two main sources: domestic sources; and, external sources in form of donor grants or loans (McIntyre 2007). Financial contributions towards health financing are classified according to the contribution mechanism as prepayment mechanisms which collectively consist of general tax revenue, payroll tax revenue or compulsory social health insurance contributions and voluntary health insurance, and direct payments which take the form of out-of-pocket payments (Kutzin 2008).

1.5.1.1 Direct payment

Direct payments are made on an out-of-pocket basis directly by the patient to public or private providers; co-payments by the insured; and direct payment for self-medication at pharmacies (Carrin et al. 2008). Out-of-pocket payments have major implications for households, with most foregoing care or cutting down on basic needs such as food and clothing to finance health care payments (Carrin et al. 2008, Xu et al. 2005). Furthermore, households suffer financial catastrophes because of these payments[4]. In health systems where the total out-of-pocket expenditure is less than 15%, households seldom incur catastrophic health expenditures (Kutzin 2008). Most of these health systems are in high-income countries where universal coverage has been attained.

Therefore, given these negative implications, pre-payment mechanisms offer greater FRP than direct payments do not allow for equity or risk cross-subsidies.

1.5.1.2 Pre-payment

This refers to financing mechanisms that allow for the collection and management of financial contributions prior to the illness and subsequent utilization of health services by an individual (OECD 2004). Prepayment offers a means of distributing financing risks equitably and efficiently between high- and low-income groups within a population (Gottret, Schieber

[4] Each year an estimated 150 million individuals globally face catastrophic expenditures and 100 million individuals are impoverished due to out-of-pocket spending on health care (Xu et al. 2005).

2006). Given the unpredictability of health care expenditures which vary in timing and magnitude, prior pooling of health risks ensures that individual health needs are spread equitably in a risk pool (Smith, Witter 2004). There are at least four structural arrangements in health financing that ensure risk pooling and prepayment: state funded systems through ministries of health (MOHs) or NHSs that raise funds from general tax revenue; social security organizations (SSOs) from social health insurance; voluntary private health insurance; and community based health insurance (CBHI) (Gottret, Schieber 2006).
Prepayment payment mechanisms are classified as mandatory or voluntary.

1.5.1.2.1 Mandatory prepayment mechanisms

These can take the form of general tax revenue or mandatory health insurance contributions (Carrin et al. 2008).

1.5.1.2.1.1 General tax revenue

This comprises direct and indirect taxes. Inequities in revenue collection arise when the tax mix constitutes a larger proportion of regressive than progressive taxes. In such instances, equity is achieved through appropriate redistributive policies (Schieber et al. 2006, Savedoff 2004) where revenue raised through regressive taxation is spent progressively such as is the case in some Western European countries (Savedoff 2004).

1.5.1.2.1.2 Mandatory health insurance (MHI)

Mandatory insurance systems finance health services through payroll deductions made by employees and employers, towards a health fund. The financial contributions for the formal sector are based on wages or salary while for the self-employed the contributions are often flat rated and based on estimated income (Carrin, James 2005). Mandatory health insurance (MHI) can take the form of national health insurance (NHI) or social health insurance (SHI). With the former government subsidizes the mandatory contributions for those with less ability to pay mainly low-income workers, the unemployed and other vulnerable groups in society (McIntyre 2007; Carrin, James 2005). Within SHI funded systems only contributors receive health benefits while in NHI systems both contributing and non-contributing members are entitled to health benefits (McIntyre 2007, OECD 2004). The contribution arrangement under NHI is based on the principle of social solidarity, a concept that infers unity, interdependence and a sense of belonging among community members (Hussey,

Anderson 2003). Therefore, NHI systems promote equity when universal coverage has been achieved.

1.5.1.2.2 Voluntary prepayment financing mechanisms

1.5.1.2.2.1 Voluntary health insurance (VHI)

Health insurance involves two key elements: pre-payment defined as the distribution of an individual's financial risk by pooling costs over time; and, risk pooling (OECD 2004). The size of the insurance pool can vary from single insurance schemes, which involve a greater degree of risk pooling, to multiple payer schemes where each individual has a prepaid medical savings account with the insurer (Hussey, Anderson 2003). The latter schemes are characterized by risk fragmentation and inadequate financial risk protection owing to market failures characteristic to insurance markets: adverse selection and cream skimming.

With adverse selection, high-risk individuals with a greater need for health care, are more likely to purchase insurance coverage insurance than low risk healthier individuals (McIntyre 2007).[5] To prevent adverse selection insurance companies preferentially select and enrol low risk healthier individuals and often young individuals as members. This practice is referred to as cream skimming (Hussey, Anderson 2003).

VHI is classified based on its *financing role* in the health system, which can be primary, duplicate, substitutive, supplementary or complementary.

VHI performs a *primary* role if public or mandatory health insurance is non-existent in the health system, or individuals that are entitled to public insurance opt out of the public insurer. Primary VHI is of two types, *substitute* and *principal* (OECD 2004). In settings where primary VHI is the main prepayment method for some proportion of the population, VHI is described as providing *principal* coverage. Principal insurance covers a wide range of health care services similar to those in tax-funded systems. VHI purchased for principal coverage is

[5] If the practice of adverse selection continues unabated, it can lead to premium spiral death, where insurers raise premiums to mitigate the losses suffered as a result of a greater enrolment of high than low risk individuals. Accordingly, low-risk individuals may choose to opt out of the insurance plan in search of a cheaper alternative while high risk individuals remain in the plan, increasing the cost of treatment to which the insurer responds by increasing premiums. Ultimately the premium gets to the 'death' part in the premium spiral when the insurer becomes insolvent and can longer offer coverage (Hussey, Anderson 2003).

highly regulated in OECD countries, especially if it is the only risk pooling mechanism (Mossialos, Thomson 2004). *Substitutive* insurance "substitutes for cover that would otherwise be available from the state" (Mossialos, Thomson 2004).

Supplementary private health insurance "provides cover for additional health services not covered by the public scheme" (OECD 2004).[6]

Complementary insurance "complements coverage of publicly insured service within principal or substitutive health insurance, which is intended to pay only a proportion of qualifying costs" (OECD 2004). The coverage covers for excluded services or partially insured services not reimbursable under the public plans such as co-payments (Mossialos, Thomson 2004).

Duplicate insurance offers coverage for services already insured under the public plan (OECD 2004, Dhalla 2007).[7] Duplicate insurance beneficiaries are not exempt from contributing to public insurance (OECD 2004).

Community-based health insurance (CBHI) schemes are a form of VHI (McIntyre 2007) often managed and operated on a not-for-profit basis by non-governmental organizations (Bennett 2004). Contributions to the scheme are often made once a year mostly during harvest time (McIntyre 2007). The degree of risk pooling in CBHI pools is restricted within a given community without addressing the variations in income and health status that prevail across communities (Hsiao 2007).

[6] Depending on the health system, the range of insurable services with supplementary cover includes services not insured by the public plan such as cosmetic surgery, elective care, pharmaceuticals, rehabilitation, alternative care and amenity hospital services, or some health services covered by the public plan but are accessible faster from the private sector (OECD 2004). This type of cover expands a consumer's choice of providers (mostly private providers) and guarantees faster access to different health services such as amenity care in hospitals, faster access to surgeries especially when waiting lists are long (Mossialos, Thomson 2004).

[7] This insurance covers health services *already* insured by the public plan, with this type of coverage, often, marketed as an option to public plans as it ensures access to similar services privately delivered care whose costs are not reimbursed by the public insurer; faster access in the public system as this covers facilitates queue jumping; access to care without referral from gatekeepers; and, a wider choice of providers.

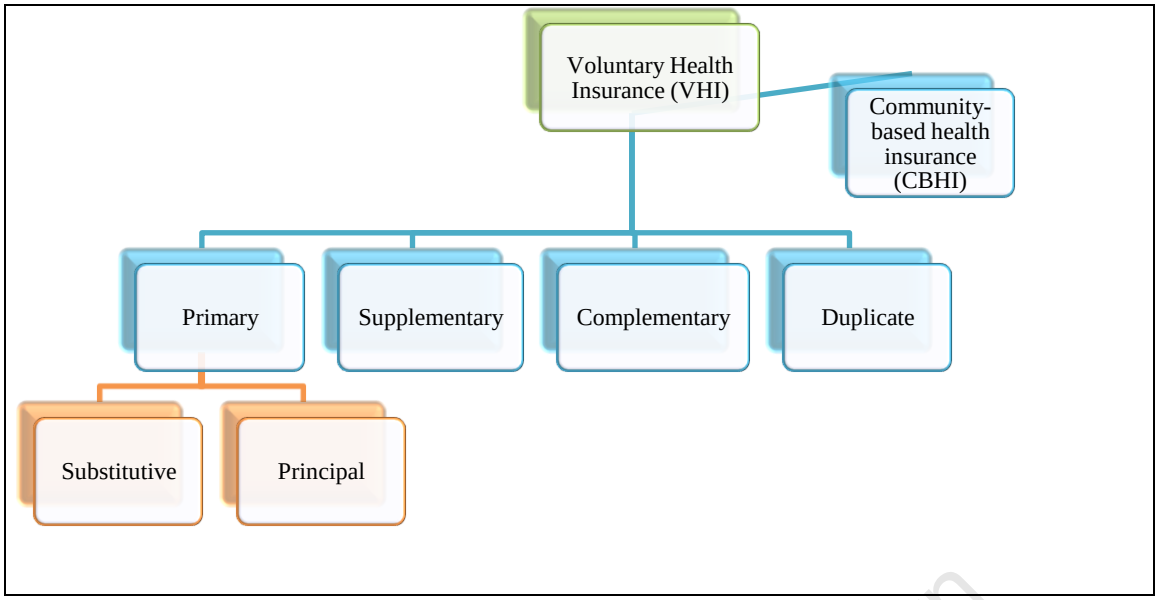


Figure 3: Taxonomy illustrating the role of VHI in health financing. (Source: Author's diagram based on VHI definitions discussed by Mossialos, Thomson 2004 and OECD 2004).

1.5.2 Pooling

This is the "accumulation of prepaid revenues on behalf of a population" (Kutzin 2001). Revenue collected to finance health care is pooled by various public and private agencies that include national ministries of health, decentralized branches of health ministries, mandatory insurance schemes and for-profit and not-for-profit private insurers (Kutzin 2008) that transfer the pooled revenue to purchasing organizations (Smith, Witter 2004). Additionally, organizations involved in risk-equalization between competing insurers also perform a pooling function. Inadequate accumulation of funds undermines the degree of financial risk protection and equitable distribution of health care resources as a result of failure in aligning incentives that uphold efficiency in provision of health services (Kutzin 2008).

1.5.3 Purchasing

This is "the transfer of pooled funds to providers on behalf of the population" (Kutzin 2008). Often, the purchasing and pooling functions are performed by the same agencies (Kutzin 2001) with the exception of pooling agencies that redistribute funds to other fund pools (Kutzin 2008). Purchasing involves two main arms: provider payment, which is the transfer of financial resources to providers (Kutzin 2001) and benefit package, which are the services and means of accessing services that the purchaser pays for with pooled funds (McIntyre

2007). Services not covered are paid by the patient fully or partially as a cost-sharing measure (Kutzin 2008).

1.5.3.1 Provider payment mechanisms

The provider reimbursement method in a given health system impacts on the quality of services offered to patients, overall health expenditure patterns, utilization rates and costs of health services (Jegers et al. 2002) since some methods create incentives to over-service or under-service as illustrated in Table 2.

Payment Mechanism	Advantages	Disadvantages	Ways of minimizing disadvantages
Salary	Predictable expenditure Low administrative costs	Possible under-provision and/or poor quality of car Little incentive for efficient behaviour and productivity unless linked to performance	Peer review of provider practices Link part of payments to performance
Capitation	Incentive for technical efficiency and preventative care Administrative costs reasonably slow	Incentive for under-service Possible cream skimming Possible cost shifting (referral to another provider)	Adjust payments to risk Monitoring and peer review of provider practices (including referral patterns) Patient choice of provider
Fee-for-service	Incentive for technical efficiency (where fee schedules are fixed)	Incentive for overprovision and cost escalation High administrative costs	Global caps and/or adjusting fee to keep within resource limits
Budget allocation	Predictable expenditure and tight control Low administrative costs	Limited direct incentives for efficiency unless linked to performance Can lead to over servicing and cost shifting	Link part of payment to performance Monitoring and peer review
Per diem	Some incentive for technical efficiency	Incentive to extend length of stay and/or increase number of admissions	Global caps/budget limits Lower fees for longer stays
Case-based (included diagnosis related group payments)	Strong incentive for efficient operation	Unpredictable expenditure Relatively high administrative costs Incentive for cream skimming	Adjust for case mix (grouping people according to their use of resources)

Table 2: Advantages and disadvantages of different provider payment mechanisms (Source McIntyre 2007:44)

1.5.3.2 Benefit package

There are four key issues in relation to a benefit package: type of service covered, type of provider, affordability and sustainability of the package.

Type of services covered: In designing a benefit package to offer FRP, consideration should be given to health services termed as catastrophic events, that is low-frequency, high-cost services that involve inpatient care and long term treatment for chronic illnesses. However, high-frequency and low-cost often provided at primary care level should also be considered as they can also result in financial catastrophes in low-to-middle income countries (McIntyre 2007).

Type of provider: The purchaser also determines which type of provider (for example public sector facility or a non-governmental organization facility) it will reimburse to provide the services. Furthermore, contracts made between purchasers and providers of health services specify the range of services to be provided to beneficiaries (McIntyre 2007).

Affordability and sustainability McIntyre (2007) argues that the trade-off between the breadth of services (how many people are covered) and the depth (which services are covered) should be considered to ensure the benefit package is sustainable amid epidemiological transitions.

1.6 Progression to universal coverage

The impediment to using health care and the occurrence of catastrophic spending on health care from out-of-pocket spending is the reason prepayment mechanisms are preferred over direct payments because of the greater financial risk protection they offer, especially general taxation and mandatory social insurance contributions (Savedoff 2004). General taxation specifically pools revenue from a larger risk pool and tax funding sources include income, purchases, property and capital (Savedoff 2004). Additionally, the characteristic market failures common to voluntary health insurance markets (McIntyre 2007) are not a feature of tax funded and SHI funded systems.

Therefore, adequate financial risk protection requires maximization of prepayment financing mechanisms to guarantee sufficient cross-subsidies; equity in financing through redistribution of costs from low to high income earners; and through purchasing contracts that ensure efficient delivery of health care (Schieber et al. 2006). Health systems use various approaches to arrive at the goal of financial risk protection, through different combinations of prepayment financing mechanisms as will be highlighted in subsequent sections of this review which will provide a descriptive analysis of health financing in the selected countries.

The integration of risk pools such as tax with mandatory insurance contributions facilitates universal coverage. The other combination is that of a prepayment mechanism with direct payments as a cost-sharing measure such as in tax-funded system where some fees are charged at the point of use, or to deter moral hazard in a national health insurance (NHI) system

In Canada, the main prepayment mechanisms are general taxation, employer-based health insurance and to a lesser extent duplicate health insurance. In the Republic of Korea, the main prepayment financing mechanisms are mandatory insurance contributions and the partial and full subsidy for the self-employed and the poor, respectively, from general tax revenue. VHI in Korea accounts for a small share of the total health expenditure covering mainly catastrophic illnesses: the degree of risk pooling in VHI is therefore limited. Mexico's main prepayment mechanisms are the mandatory insurance contributions for the formal sector and general tax revenue, which partly subsidises formal sector employees, the self-employed and low-income earners' contributions while fully subsidizing the poor. VHI in Mexico is a preserve for high-income groups and facilitates access to private care. Lastly, the United Kingdom's NHS is financed with two main prepayment mechanisms, general taxation and the national insurance (NI) contributions. The other prepayment financing mechanism, duplicate VHI has a limited role in financing and facilitates access to privately delivered care.

In the following sections, health financing in the four health systems will be outlined in a descriptive fashion while key lessons on how equity, efficiency, sustainability and feasibility have been achieved will be discussed in the article manuscript. Policy implications of universal coverage based on evidence from the four OECD countries reviewed will be detailed in a policy brief.

2.0 Canada

2.1 Historical background

The foundations of the Canadian health care are constitutionally bound in the British North America (BNA) Act of 1867 when Canada became a confederation (Hirdes 2001). Provincial governments provided public health services and granted financial subsidies to non-profit organizations for the provision of hospitals services and outpatient care (Li 2006). Prior to the economic depression in the 1930s health care was provided according to socio-economic status or ability to pay in the for-profit private sector (Hirdes 2001). In 1947, Saskatchewan province established a hospital insurance plan termed 'hospitalization' (Marchildon 2005). The transition to 'hospitalization' in other provinces occurred gradually due to financial constraints but was aided by the fund-sharing bill of 1959, the Hospital Insurance and Diagnostic Services Act (HID). According to this Act, federal and provincial governments financed hospital-based care costs on an equal 50-50 basis (Marchildon 2005, Deber 2003). This was a great inducement for other provinces to enact hospitalization bills. By 1961 all provinces had complied with the HID Act. In the same year Saskatchewan extended universal insurance coverage for ambulatory physician services modelled on the sharing funding formula with the federal government (Schell 1989). The federal governments' Medical Care Act (MCA) of 1966 was then enacted requiring all provinces to provide coverage for ambulatory physician services (Hutchison, Abelson & Lavis 2001). By 1972, all provinces had complied with the Act (Deber 2003). In 1984 the HID and MCA Acts were consolidated into one, the Canada Health Act of 1984, a policy milestone that explicitly set the guidelines for provision of all insured services in accordance with the five principles of public administration, comprehensiveness, portability, universality and accessibility (Marchildon 2005).

The Canadian health system or Medicare is predominantly tax-financed with private (not-for-profit and for-profit) provision of health care services (Marchildon 2005). The thirteen provincial single payer universal systems provide "medically necessary services" or publicly insured as stipulated in the Canada Health Act. Insured services are provided free at the point of use (Health Canada 2009). The provincial and territorial governments fund health services with assistance from the federal government in the form of the federal fiscal transfer called the Canada Health Transfer (CHT), which is allocated on a per capita basis (Department of Finance 2009). The federal government's role in delivery and provision of health services is

limited. The government sets national standards for Medicare, public health, drug and food safety regulation and directly provides health care services for persons excluded from Medicare, mainly serving members of the Canadian Forces or Royal Canadian Mounted Police, veterans, inmates of federal penitentiaries and First Nations people living in reserves and the Inut (Marchildon 2005).

2.2 Major reforms

2.2.1 Regionalization

The high public debt accumulated by both federal and provincial governments was one of the factors that led to changes in the fiscal policy after the economic recession of the early 1990s. The federal government froze federal cash transfers to provinces and finally cut them off in 1995 (Marchildon 2005). In turn, provinces reduced budget allocations to hospitals among other cost cutting measures such as hospital closures and rationing of services through the undersupply of technology and human resources (Angell 2008). Structural changes in service delivery were effected through the devolution of authority from provincial governments to regional health authorities (RHAs), in a process termed regionalization (Marchildon 2005). The aim of the reform was to cut costs by creating a seamless delivery system through the dissolution of the many autonomous boards and creation of one administrative body, the RHAs (Denis, Contandriopoulos & Beaulieu 2004). All provinces have merged hospitals into quasi-independent RHAs with the exception of Ontario which has devolved authority through a recommendatory authority, the District Health Council (Forest, Palley 2008). However in 2005, Prince Edward Island province halted regionalization (Marchildon 2005).

Regionalization has decreased gaps in provision of care, reduced service duplication and increased responsiveness of the health system to population health needs. RHAs are able to respond faster to pertinent issues as there are fewer autonomous bodies to consult in the decision making process (Denis, Contandriopoulos & Beaulieu 2004, Lewis, Kouri 2004). Some argue that the challenge arising from regionalization is from low morale among front-line providers and managers. Changing the organizational culture that has taken decades to evolve has been challenging in tackling financial issues, integration of services, and community participation in decision making. Additionally, RHAs do not have authority over physicians' service contracts and budgets and pharmaceutical budgets, the main cost drivers in the health care system (Davis 2004, Lewis, Kouri 2004).

2.2.2 Primary care reforms

Primary care innovations were launched in three waves starting in the 1970s with an aim to change the organizational structure of family practice and funding patterns. The reform began in Quebec in 1972 through the introduction of *Centres locaux de services communautaires* (CLSCs) (Marchildon 2005, Hutchison, Abelson & Lavis 2001). CLSCs reimbursed physicians on a salary basis. By the end of the 1990s slightly over 20% of family physicians and GPs worked in CLSCs (Hutchison, Abelson & Lavis 2001). Later Health Service Organizations (HSOs) were founded in Ontario, where general practitioners practising in the HSOs were reimbursed on a capitation basis. HSOs were unceremoniously suspended and Community Health Centres (CHCs) were introduced in their place. CHCs were funded through global budgets and employed physicians, nurse practitioners and midwives (Hutchison, Abelson & Lavis 2001). Salary and capitation payment methods were often used to reimburse physicians and to a lesser extent fee-for-service and global budgets.

The goal of changing the fee-for-service provider payment mechanism for primary care practitioners has not been successful owing to: physicians' powerful opposition and insistence on autonomy; and, lack of stewardship by federal government in steering the process. The latter's influence is only felt at the funding level of mainly pilot and demonstrative projects most meeting their demise before any real changes can be achieved (Hutchison, Abelson & Lavis 2001).

2.3 Health financing

2.3.1 Revenue collection

There are three main financing sources: general tax revenue, private health insurance and out-of-pocket payments.

2.3.1.1 General tax revenue

General revenue funds (GRF) are the main funding source for the Canadian health care system accounting for over 70% of the total health expenditure. The taxes comprise direct and indirect taxes collected by provincial and federal governments with a large share of the revenue coming from individual and corporate income taxes. Moreover, some provinces raise auxiliary health revenue through earmarked taxes or 'premiums' (Marchildon 2005).

2.3.1.2 Out-of-pocket payments

Out-of-pocket payments are the main source of private finance for health goods and services such as vision care, over-the-counter medications, and complementary and alternative medicines and therapies (Marchildon 2005). They account for 15% of total expenditure on health.

2.3.1.3 Private health insurance (PHI)

Private insurance accounts for 12% of the total health expenditure. This insurance performs two main roles: complementary and duplicate. The former is employer-based sponsored by trade unions and professional organizations and is compulsory for all employees and covers 65% of the population (Dhalla 2007, Marchildon 2005). This insurance facilitates reimbursement of health goods and services that are not financed with public funds such as out-of-hospital pharmaceuticals, dental care, home care and outpatient rehabilitation mainly in physiotherapy clinics (Marchildon 2005). In addition, tax rebates are offered to subscribers of complementary PHI (Dhalla 2007) in all provinces with the exception of Quebec which taxes this health benefit under the province's income tax system (Marchildon 2005).

On the other hand, duplicate PHI is allowed in four provinces (New Brunswick, Newfoundland, Nova Scotia and Saskatchewan) and illegal in six provinces-Alberta, British Columbia, Manitoba, Ontario, Prince Edward and Quebec. Duplicate insurance covers all or part of services rendered by opted-out physicians (a physician who has given up his rights to

bill the public plan to practice in the private sector). Only in Nova Scotia are physicians (opted in or out) not allowed to bill more than rates charged by the public insurer. In Newfoundland, there are no limits to the range of services private plans can cover (Flood, Archibald 2001). This arrangement offers a perfect incentive for private insurance to thrive but the private sector is not flourishing because of the lack of public subsidies for duplicate insurance and the fact that physicians must opt in or out of the public plan deters dual employment (Dhalla 2007, Flood, Archibald 2001). Following the 2005 ruling in the *Chaolli v Quebec* case[8] the, ban on duplicate PHI was lifted in Quebec province (Steinbrook 2006, Madore 2006) and widened the scope of private financing in other provinces that had banned duplicate PHI[9].

2.3.1.4 Auxiliary sources of finance

Contributions to social insurance funds raised by employers from provincial workers' compensation schemes and donations from charitable organizations directed towards health research, upgrading of facility infrastructure and equipment acquisition are other sources of funds for Medicare (Marchildon 2005).

2.3.2 Coverage and composition of risk pools

There are three main pools: the general tax revenue pool covers 100% of the population (Marchildon 2005) and the employer based private health insurance pool covers 65% of the population (Dhalla 2007). Population coverage for duplicate health insurance is still undetermined.

[8] The court ruled that the one-year wait for a hip replacement, a publicly insured service, (Steinbrook 2006) was a violation of the province's Charter of Human Rights and Freedoms since the lengthy wait compromised the individual's health. The public insurer could either have shortened the waiting time or allowed the procedure to be provided in the private sector (Angell 2008).

[9] In 2006 Quebec province revised its Medicare law to correspond with its human rights charter and the remaining five provinces that had previously banned PHI coverage for medically insured services are re-examining their laws in anticipation of future litigation if the current CHA stipulations are perceived to conflict with a patient's human rights (Angell 2008, Marchildon 2005). The Quebec government has proposed that duplicate insurance should be limited to services obtained from opted out practitioners (Madore 2006). Alberta has allowed duplicate PHI to meet the costs of privately delivered care by allowing direct purchasing of publicly insured services from private providers and permitting dual employment of physicians in both sectors. The provincial government of British Columbia, is considering private delivery and possibly financing of publicly insured health goods and services (Steinbrook 2006).

2.3.2.1 Pooling organizations

The Canada Revenue Agency collects federal taxes but taxes are also collected at provincial and municipal levels (PWC 2009b).

2.3.2.2 Allocation mechanisms

The federal government transfers pooled general tax revenue on a per capita basis to provincial governments, which then transfer funds to RHAs through global budgets (Marchildon 2005). Global budgets result in some regions receiving disproportionately more funds than others creating across-region inequalities. To harmonize this disparity, a needs-based-funding or population-based funding has long been proposed (Li 2006) for allocating budgetary funds from the provincial government to the RHAs. So far, only three provinces (British Columbia, Alberta and Saskatchewan) have adopted the needs based approach while Ontario applies this funding method in allocating financial resources for home care and community-based services (Hurley 2004).

Insurers reimburse providers based on claims made by the insured to the health insurance company for medical expenses paid (Li 2006).

2.3.3 Purchasing

2.3.3.1 Benefit package

Medically necessary services at secondary, tertiary, emergency care and elective care levels are offered free of charge, not-for-profit hospitals. Provincial drug plans or complementary health insurance, subsidizes the costs of out-of-hospital prescriptions Primary care services are provided by private physician practicing in solo and rarely in group practices. Patients have a choice of a primary care provider since there is no rostering. Most patients have an established relationship with physicians (Marchildon 2005). Outpatient prescriptions are not publicly funded but all provinces have drug plans (Pharmacare) to insure against these charges for those on social assistance and citizens aged over 65. The exceptions are New Brunswick and Newfoundland where the drug plans cover only senior citizens with very low incomes. All the provincial drug plans are tax-financed except in Quebec where those on Pharmacare are required to pay an annual premium based on net income. The premium is collected through the provincial income tax system. In addition, Alberta offers an extended health benefits plan for those not covered by insurance plans for seniors and social assistance

recipients. This plan also provides coverage for outpatient prescriptions (Blomqvist, Xu 2001).

Rehabilitation within hospitals is publicly insured, while out-patient rehabilitation mainly home-based physiotherapy services or workplace occupational therapy may be financed through employer based health insurance, duplicate insurance or purchased directly from service providers (Marchildon 2005).

2.3.3.2 Provider payment

Salaries are the preferred provider payment method for all cadres of nursing personnel and pharmacists working in the for-profit retail sector (Marchildon 2005). Physicians are reimbursed on a fee-for-service basis (Li 2006, Marchildon 2005, Leatt, Pink & Guerriere 2000). Hospitals and clinics receive global budget transfers from RHAs (Li 2006). The RHAs have the authority to determine the method of allocation and payment to the various health organizations in a specified region (Marchildon 2005).

2.3.3.3 Purchasers

General practitioners have the gatekeeper role in the health system (Marchildon 2005). RHAs do not provide primary care but contract out to private practitioners (Hutchison, Abelson & Lavis 2001) but they manage acute care facilities and directly reimburse the salaried health personnel (Marchildon 2005).

2.3.4 Provision

The services covered at primary care level include maternal and child health care and other non-acute medical care services. Patients have a choice in selecting a family practitioner with most patients having established relationships with respective family physicians (Marchildon 2005). Physicians are independent contractors with one third practicing in solo practices while the rest practice in small group practices, averaging five physicians per group, owned and managed by the physicians (Hutchison, Abelson & Lavis 2001).

Dental services are provided by independent practitioners in private practices. An estimated 94% of all dental care services are not publicly financed. Dental services are privately financed either through direct out-of-pocket payments or through employer-based private health insurance and rarely through duplicate private insurance. Dental services are

subsidized for social assistance receipts for some or all services provided. However, dental surgery performed within a hospital setting is publicly financed (Marchildon 2005).

Hospitals are structured as non-profit organizations that are publicly funded through global budgets. The hospitals are managed by RHAs. For-profit private hospitals do not qualify for block funding and are prohibited from providing health care services that are covered by the public payer (Detsky, Naylor 2003). Inpatient rehabilitation is publicly financed while outpatient rehabilitation mainly in physiotherapy clinics is not covered by public insurance. This service is accessible from private providers through employer based health insurance or out-of-pocket payments. Long term care for the elderly is provided in nursing homes either run by RHAs or by both not-for-profit or for-profit independent organizations (Marchildon 2005).

For pharmaceutical care, physicians are permitted to prescribe a wide range of prescription items and to a lesser extent dentists and nurse practitioners. Out-of-hospital prescription items and over the counter drugs are obtained at the various retail pharmacies in the country which are mostly large retail chains or small independent outlets (Marchildon 2005).

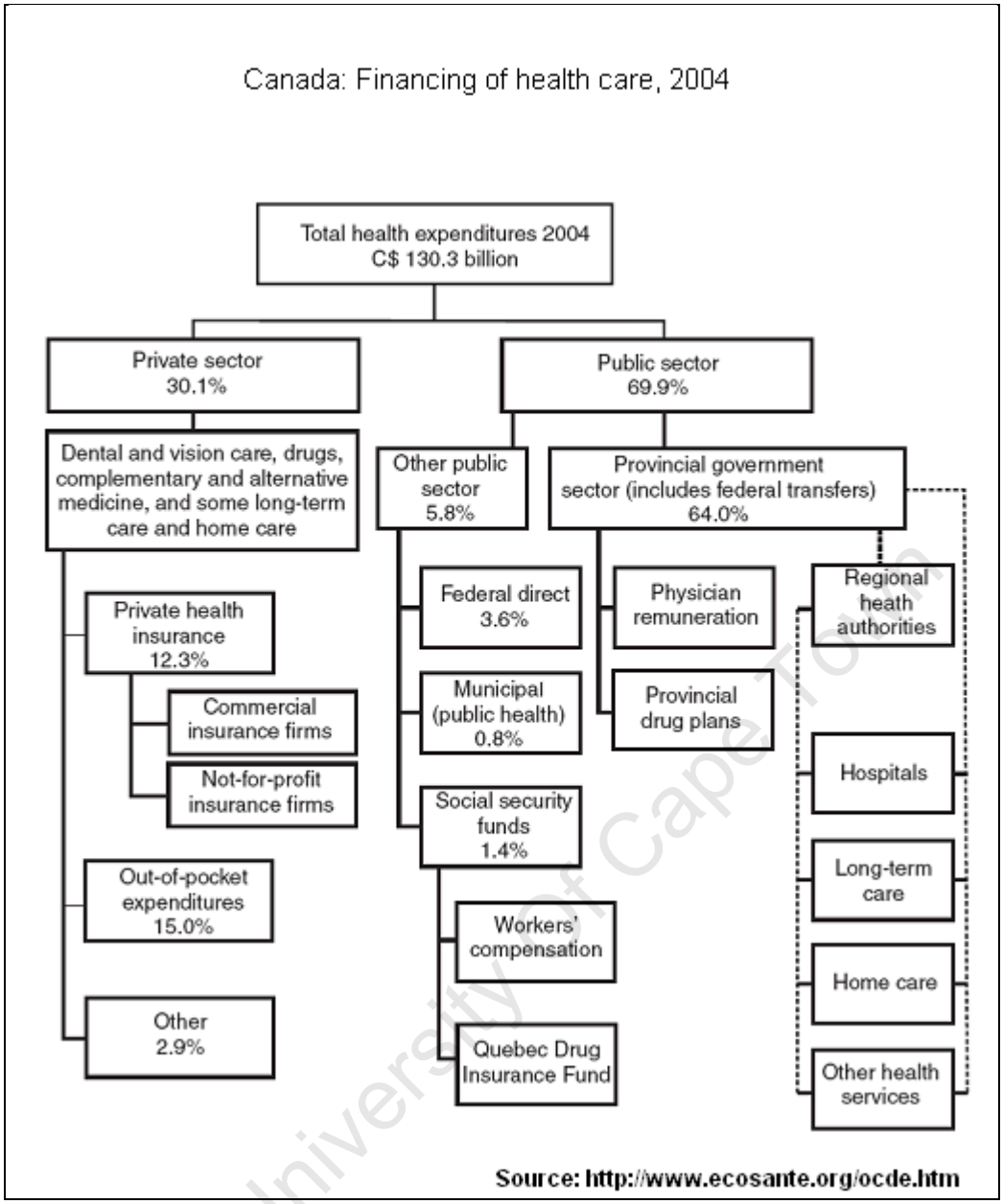


Figure 4: Health Financing Canada, 2004

3.0 Republic of Korea (South Korea)

3.1 Historical background

The first Korean medical insurance law was enacted in 1963 (Kwon 2009) allowing firms with 300 employees or more to create health insurance societies for enrolment on a voluntary basis. This was highly ineffective due to adverse selection (Peabody, Lee & Bickel 1995) limited funding and high administrative costs leading to a revision of the law in 1970 (Son 1998). Health insurance remained voluntary until 1977 when mandatory insurance was introduced (Yang, Bae & Kim 2008, Kwon 2003a, Jong-Chan Lee 2003). Contributions were progressively structured in terms of income, and benefit entitlement was independent of the level of contributions (Anderson 1989).

The first group to be insured were firms with 500 or more employees (Kwon, Chen 2008, WHO 2005a, Son 1998). Extension of health insurance to other occupational groups and their dependants occurring incrementally; in 1978 to government workers (Peabody, Lee & Bickel 1995), 1979 to school employees and pensioners (Anderson 1989), 1980 to military personnel and to establishments with 100 workers in 1981, 16 in 1983 and 5 in 1988 (Son 1998). With the formal sector insured, coverage was extended to the informal sector. This was intended to decrease the unequal payments for health care between the two sectors. Providers charged higher unregulated fees to the non-insured group as a counteractive measure to the government-regulated fees reimbursed by formal sector insurance societies (Kwon 2009). Accordingly, the self-employed in rural areas and foreign residents were covered in 1988 and in 1989, the last un-insured group, the urban self-employed were covered (Kwon 2003a, Son 1998).

Universal coverage was achieved through the numerous social insurance societies and a means-tested program, Medical Aid, which subsidized contributions for low income earners, the unemployed and poor (Kwon 2003a) to create the national health insurance (NHI) system in Korea. Medical Aid was established in 1977 (Anderson 1989) and is financed primarily with general revenue funds (WHO 2005a) with supplementary funds from local government which manages the programme (Peabody, Lee & Bickel 1995). The fund covers 4.6% of the population living below the poverty line (O'Donnell et al. 2008).

Health care services are provided by for-profit providers reimbursed on a fee-for-service (FFS) basis. Thus, the vulnerability of the health system to financial shocks and increases in health spending is inevitable given this FFS dominance with limited incentives to contain costs (Kwon 2007). Cost containment and fiscal stability in the NHI can be only achieved by reforming the financial incentives embedded in the current provider payment system to ensure provision of cost-effective care while reducing the escalating health cost inflation (Kwon 2009).

3.2 Major reforms

3.2.1 Pharmaceutical reform

Prior to the pharmaceutical reform in 2000, both pharmacists and physicians could prescribe and dispense medicines (Kwon, Reich 2005), a practice influenced by the lack of role differentiation between prescriber and dispenser in the tradition of Oriental medicine prevalent in East Asia (Jeong 2005). The sale of drugs was highly lucrative as local pharmaceutical companies supplied physicians with drugs with high profit margins (Kim, Chung & Lee 2004). Revenue from drugs sales accounted for 40% of total income in most physician clinics (Jeong 2005). On the other hand, pharmacists played the role of primary care providers (Jong-Chan Lee 2003, Kwon 2003c), a practice boosted by the culture of self-medication among Koreans (Kwon, Reich 2005, Kim, Chung & Lee 2004).

The pharmaceutical reform was enacted to decrease misuse and overuse of drugs, improve the efficiency of the pharmaceutical sector and streamline drug distribution. The policy mandated separation of not only the dispensing and prescribing roles but of medical institutions, outlawing location of pharmacies within hospitals (Jeong 2005). Faced with revenue losses generated from sale of drugs, both office-based and private-hospital based physicians engineered a series of nationwide strikes in defiance of the reform, grinding the health system to a halt (Kwon 2007, Kwon, Reich 2005, Kwon 2003c). As restitution for revenue losses, government increased medical fees by 45% in 2000 (Kwon 2007). The dominant bargaining power gained by physicians led to alteration of the original reform agenda, with negative consequences for the health system. For example, regulation granting the right to prescribe by brand name was passed allowing for generic substitution only for drugs that had undergone mandated bioequivalence tests (Jeong 2005). Accordingly, a greater percentage of prescription drugs relative to non-prescription drugs were listed under the

NHI's reimbursable list. Additionally, the right to administer injection was restored to physicians (Kwon, Reich 2005, Jeong 2005).

3.2.2 Payment reform

The unprecedented national economic crisis in 1997 (Kim, Chung & Lee 2004) widened the NHI's financial deficits worsening the escalating health care cost inflation that was fuelled by the profit-driven delivery system, an ageing population, expensive medical supplies and increased spending on pharmaceuticals (Kwon 2003b). To contain the rising health costs on the delivery side, government adopted two provider reimbursement methods; Diagnostic Related Groups (DRG) and resource-based relative value (RBRV) payments in the late 1990s (Kwon 2007, Kwon, Reich 2005, Kwon 2003b).

The DRG-based prospective payment system for inpatient care was launched in 1997 as a pilot programme (Kwon 2007) among voluntarily participating hospitals (Kwon, Reich 2005). By January 2000, there were 798 hospitals participating in the pilot project (Kwon 2003b). Evaluation of the program after the three-year pilot proved providers were responding to the saving incentives of the DRG-based method (Kwon, Reich 2005). The economic burden on patients had lessened due to expansion of the benefit package and overall there was a decrease in medical care costs, inpatient days, average number of tests per inpatient and the use of antibiotics without compromise to quality of care (Kwon 2003b). However, the DRG payment method was not implemented nationwide in spite of its proven efficiency because of the pharmaceutical reform (Kwon 2007, Kwon, Reich 2005, Kwon 2003b).

The RBRV-based payment for office-based physicians aimed at introducing new fee schedules that would change the relative prices of health services and redistribute income across specialties by cutting fees on over-valued services and increasing prices on the under-priced services. However, physicians affected by the fee cuts opposed the reform and instead the RBRV payment system was implemented in 2001 with some modifications. While the fees for under priced services were increased, fees for overpriced services were not reduced (Kwon, Reich 2005, Kwon 2003b).

3.2.3 Single payer system

Prior to the integration reform in 2000, the NHI was characterized by multiple insurance schemes operating as non-profit quasi-official bodies regulated by the Ministry of Health and Welfare. The schemes had statutory benefit packages and the same FFS reimbursement mechanism for paying providers (Peabody, Lee & Bickel 1995)[10]. By 1998 there were 227 insurance societies catering for the self-employed, 142 for industrial workers and a single scheme, the Korean Medical Insurance Corporation (KMIC) for civil servants and teachers in private schools (Kwon 2003a).

Faced with rising health expenditures, the medical schemes catering for the self-employed experienced financial instabilities as the partial subsidy from government, though increased incrementally over time, was insufficient in meeting the health expenditures. As a counter active measure, contributions were increased to augment revenue but with less ability to pay among the rural population, most rural medical societies faced chronic financial instabilities requiring risk equalization[11] (Kwon 2009, Kwon 2003a). This revenue-sharing arrangement involved all schemes in the NHI and involved creation of a fiscal stabilization fund that took account of catastrophic expenditures and proportion of aging members in each scheme in determining the per capita amount payable to providers. As expected, the beneficiaries of risk-equalization were schemes catering for the rural self-employed (Kwon 2003a). In spite of the stabilization measures, financial insolvency lingered in rural schemes and the NHI as a whole (Kwon 2009). This eroded social solidarity and widened the health inequities among NHI beneficiaries due to varying fiscal capacity and composition of enrolees. Rural schemes had decreasing numbers of enrolees (Kwon 2009) and a higher percentage of high risk individuals (the elderly, low income earners and chronically ill) than other schemes (Kwon 2003c), attributes that limited cross-subsidies in the schemes. It is against this background that the NHI was transformed from a multiple-insurer system characterized by fragmented pools incapable of equitable risk pooling and deficient in harnessing the economies of scale

[10] The insurance schemes did not engage in competitive behaviour to attract enrolees nor improve risk pooling (Kwon 2003a) but operated as co-operatives (Peabody, Lee & Bickel 1995). They managed finances resources by collecting own revenue and managing this financial resource through accumulation of surpluses which ensured their financial stability (Anderson 1989)

[11] "A mechanism whereby revenue accruing from contributions to several health insurance schemes or health funds acting as financing intermediaries (i.e organizations that receive contributions and pay health care providers) for a social health insurance system is pooled and the individual schemes allocated an amount which reflects the expected costs of each scheme according to the overall ill-health risk profile of its membership calculated on a risk-adjusted capitation basis" (McIntyre 2007).

in management, to a single payer system (Kwon 2003a). Other reasons were the apparent horizontal inequity, a consequence of differences in level of contributions with individuals of comparable earnings contributing more or less depending on which society they were enrolled in (Kwon 2009, Kwon, Reich 2005), and lack of self-governance within the medical societies due to centralized decision making passed down by bureaucratic elites (Kwon 2003a).

Merging of insurance societies was achieved in two phases: the partial merger in 1998 that consolidated the insurance societies for the self-employed, civil servants and private teachers and the full merger in 2000 when industrial workers' insurance societies were incorporated into the National Health Insurance Co-operation (NHIC) (Jeong 2005). The NHIC determines the level of contributions, level of services, provider payment and fund management. These roles are implemented by NHIC branches countrywide (NHIC 2009).

3.3 Health financing

3.3.1 Revenue collection

There are four sources of finance in this health system: mandatory insurance contributions, out-of-pocket payments, general tax revenue and voluntary health insurance.

3.3.1.1 Mandatory insurance contributions

This is the main source of finance for the NHI. The contribution levels for the self-employed takes into account income and property (Kwon 2009, Kwon 2007) while for industrial workers, civil servants and school employees the contributions are proportional to income shared equally between employer and employee (Kwon 2009). The contribution rate is fixed at 5.08% (NHIC 2009).

3.3.1.2 Out-of-pocket payments

This is the second major source of funds for the health care system and relates to quite substantial co-payments on insured services and direct payment of uninsured services. Though the NHI benefit package has been expanded gradually, the proportion of OOPs has only declined marginally due to increased utilization of uninsured services (Kwon 2007).

3.3.1.3 General revenue funds

These funds fully subsidize the contributions to the NHI for the poor through Medical Aid and partially subsidize the contributions for the self-employed (Kwon 2009).[12]

3.3.1.4 Supplementary private health insurance

Private insurance plays a supplementary role in Korea. This type of benefit is supplementary to public insurance and comprises a fixed amount of benefits in the event of catastrophic illnesses to cover the cost of co-payments (Kang et al. 2009, Shin et al. 2009). This insurance is provided by life insurance and damage insurance companies (WHO 2005a). The benefit covers few cancer screening services and/or preventative services after diagnosis has been made. The patient then purchases the needed treatment from providers with the lump sum payout (Kang et al. 2009). Given the large benefit payouts made to beneficiaries, PHI often over- or under-insures Koreans. The average benefit payable to newly diagnosed cancer patients was 20 000 USD between 2001 and 2005 while actual co-payments for cancer services under the NHI are usually lower than 10 000 USD. This "over insurance" could account for the general perception among cancer survivors that PHI is beneficial (Shin et al. 2009).

3.3.2 Pooling

3.3.2.1 Coverage and composition of risk pools

There are three main fund pools: the social insurance pool, the general taxation pool and the private insurance pool. The social insurance pool covers 96% of the population, general tax revenue covers 4% (NHIC 2009) and private insurance covers between 2-4% of the population.

3.3.2.2 Pooling organizations

The NHIC through its nationwide branches collects revenue (NHIC 2009). There is pool integration between the general revenue fund pool and the mandatory insurance pool, through the partial and full subsidization of the NHI contributions with GRF.

[12] 80% of the subsidy is from general government budget while 20% is from the earmarked cigarette tax (Kwon, Chen 2008). The partial government subsidy pays 22%-50% of contributions for the insured in island and remote rural areas, 10-30% for low income earners and 30% for the disabled and aged above 65 (NHIC 2009).

3.3.2.3 Allocation mechanisms

There is no definite formula for allocating of health resources in the Korean health system. The central claim review agency, the Health Insurance Review Agency (HIRA), reviews all medical claims and determines whether services delivered to NHI beneficiaries are medically necessary and cost-effective (Kwon 2009, NHIC 2009). The NHIC then reimburses providers based on HIRA's assessment.

3.3.3 Purchasing

3.3.3.1 Benefit package

Health care benefits are either in the form of cash or benefits in-kind, the latter constitutes 99% of all inpatient benefits. The benefit package has been expanded over time to include a variety of health interventions such as unlimited inpatient stay days, medicines dispensed in pharmacies, CT scanning technology (Jeong 2005) traditional medicine (Kwon 2007), meals during hospitalization, nursing, ambulance services (NHIC 2009), bi-annual checkups and vaccinations (Kwon 2009). Cancer screening for stomach, colon, breast and liver is shared between insurer (80%) and beneficiary (20%). Uninsured services are those that are not life-threatening or impair physical activity such as plastic surgery (NHIC 2009).

3.3.3.2 Provider payment

Office-based physicians are primarily public-funded through the NHI (Wagstaff 2007). The reimbursement is based on the RBRV- method but they also receive substantial revenue from patients through direct payment of fees for utilization of uninsured services. Hospital-based physicians are on salaried contracts (Kwon 2003). Private and public hospitals have a similar fee schedule (Kwon 2009). Providers are paid on a regulated FFS basis by the single insurer (Kwon 2007, Kwon 2003b). The common fee schedule for both primary and tertiary care is a strong incentive for providers to oversupply uninsured services (Wagstaff 2007) for which patients pay directly such as sonograms, private rooms, special treatment charges (STCs), most nuclear scanning and some chemotherapy (Yang 1996).

3.3.3.3 Purchasers

The lack of role differentiation at all levels of care and absence of gate keepers at the primary care level (Kwon 2003) results in a weak referral system. Ambulatory clinics offer an expanded range of services (Wagstaff 2007) similar to services provided at outpatient clinics

in hospitals resulting in competition for patients between hospitals and physician clinics (Kwon 2009). Active purchasing by the single insurer, the NHIC, is non-existent.

3.3.4 Provision

Providers are a mix of for-profit, not-for-profit and public institutions (Yang 1996). Most for-profit hospitals are owned and managed by physicians (Kwon 2003). Approximately 90% (Jong-Chan Lee 2003) of acute general and acute hospitals (Yang 1996) and all ambulatory clinics are privately owned (Yang, Bae & Kim 2008). The not-for profit hospitals are owned by for-profit owners. Many private hospitals evolved from physician clinics with few beds that were expanded by enterprising physicians to meet the growing demand and utilization health care as result of the NHI programme (Kwon 2003b). The public sector controls fewer than 10% of acute hospitals (Kwon 2009, Kwon, Reich 2005, Jeong 2005)[13].

[13]This comprises tuberculosis, leprosy and psychiatric hospitals (Yang 1996), the *Bogeunso* or public health centers, the National Medical Centre and provincial medical centers (Jong-Chan Lee 2003).

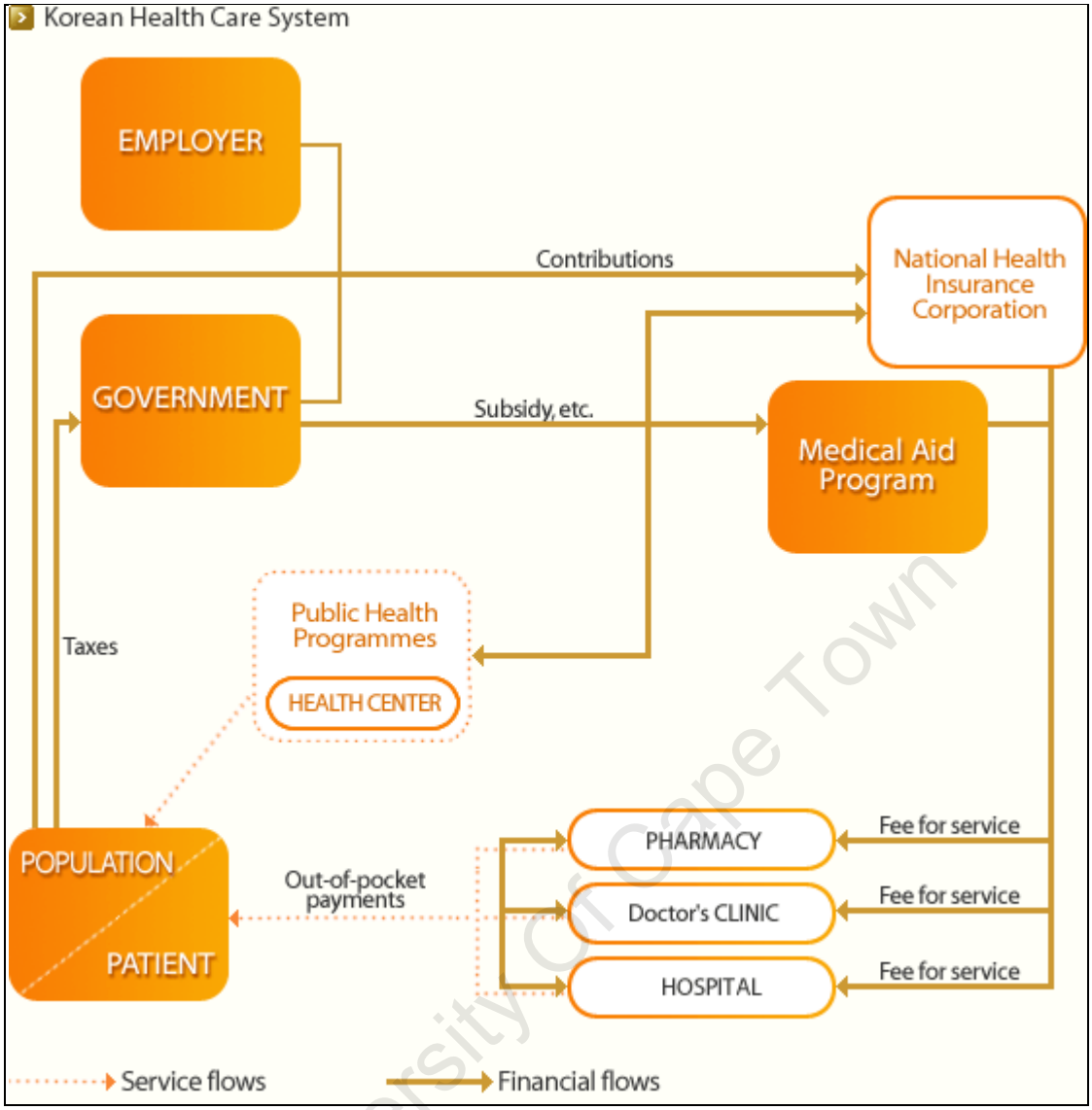


Figure 5: Health Financing Korea
(Source: National Health Insurance Corporation (http://www.nhic.or.kr/eng/)

4.0 The United Kingdom

4.1 Historical background

Social care and provision of state-funded health care was common in England since the 16th century with the poor receiving care from religious missions particularly monasteries. Advancements in medical education paved the way for the establishment of hospitals by local and municipal authorities. Local authorities were responsible for providing community health services and public health while general practitioners provided primary care as a family doctor service (Greengross, Grant & Collini 1999). In 1911, parliament endorsed a national health insurance act that allowed insurance coverage for low-income workers. The insurance covered primary health care, drugs and provided cash benefits at the time of illness (Savedoff 2004, Light 2003). However, dependants were not covered by the scheme. The affluent were covered through various provident societies, fraternities and clubs that offered voluntary health insurance. Inequities in access to health care prevailed as majority of the population, mainly the poor and the unemployed did not have any form of prepaid health care. They financed their health care costs on an out-of-pocket basis or depended on the mercy of private GPs, who offered primary health care services to the poor as a form of charity (Light 2003). The hospital system was two-tiered with public hospitals on one hand offering a comprehensive range of care and smaller, under-funded private hospitals offering limited health care services on the other. Service co-ordination between the two-hospital types and access to specialized care was lacking. Specialists owned and located private practices in affluent areas where a greater number of private patients resided (Light 2003).

Plans to extend and improve the national insurance scheme to a universal scheme to cover more people were expressed in the 1942 report "Social Insurance and Allied Services" authored by Sir William Beveridge (Musgrove 2000). The report explicitly described the need for universal health care, greater spending on education, housing, social security and employment (Light 2003). The recommendation in the Beveridge report came into effect after the devastation of the Second World War. There was a high degree of social cohesiveness with collective responsibility towards nation building. The key political actor at the time, the Labour Party, riding on the emerging cross-class social solidarity pushed for a centralized universal health system financed with general revenue funds (Savedoff 2004). Accordingly, the National Health Service (NHS) Act was enacted in 1946 paving the way for the establishment of the NHS in 1948 (The European Observatory on Health Care Systems 1999).

The three fundamental principles of the NHS at its launch were: that it met the needs of the population; service delivery was free at the point of delivery and care based on clinical need and not ability to pay (Greengross, Grant & Collini 1999). Nonetheless, professional organizations representing medical specialists and general practitioners were opposed to the idea of 'socialized medicine'. Incentives were offered through lucrative service contracts and professional autonomy to make them receptive of the new system. GPs were allowed to practice independently, but would be contracted by the NHS to treat their patients. On the other hand, specialists were granted flexible contracts that allowed dual employment in the public and private sector. This entailed employment on a full or part-time basis in NHS hospitals under salaried contracts while allowing for private practice under fee-for-service contracts (The European Observatory on Health Care Systems 1999). This has remained unchanged until today.

In terms of organizational structure, local agencies and organizations are separately responsible for planning, decision making and regulating the NHS (The European Observatory on Health Care Systems 1999). The Department of Health formulates policies and sets standards on key issues in the NHS. The delivery system comprises strategic health authorities and primary care trusts (PCTs) the former responsible for strategic planning while PCTs commission services on behalf of NHS patients. Health care is accessed through primary and community health facilities and hospitals which deliver a comprehensive range of services, mainly health promotion, curative care, preventative care, self-care, rehabilitation and aftercare. Secondary care is provided at NHS hospitals or Trusts and specialist care centres upon referral from primary care trusts (PCTs). Emergency services are handled by ambulances provided under the NHS Ambulance Trust (The European Observatory on Health Care Systems 1999).

4.2 Key reforms

4.2.1 Purchaser-provider split

The introduction of the purchaser-provider split in 1991 was intended to improve efficiency, widen patients' choices, improve quality in service delivery and encourage competition among providers for service contracts from purchasers (The European Observatory on Health Care Systems 1999). Under the managed competition model, health authorities relinquished

provision of hospital services to hospitals, which came to be known as NHS Trusts, after health authorities took on the new role of purchasers to compete with GP fund-holding schemes (Chalkley, McVicar 2008). By 1998 all acute hospitals, community care providers and ambulance services had become trusts (The European Observatory on Health Care Systems 1999).

GP fund holding was abolished in 1998, and in its place, primary care groups (PCGs) were introduced, later becoming primary care trusts (PCTs) (Abbott, Procter & Iacovou 2009). PCTs have a dual role as providers of primary care and purchasers of secondary care, within an integrated budget, an approach that improves technical efficiency. Unlike in the fund holding era where joining such a scheme was voluntary, all GP are mandated to join a PCT. Typical PCTs comprise 4-5 GPs. Health authorities are now responsible for strategic planning in collaboration with PCTs, other NHS trusts and local authorities (The European Observatory on Health Care Systems 1999).

4.2.2 Performance-based contracts for providers

Performance-linked contracts introduced in the 1990s failed to induce GPs to meet health promotion and immunization targets in spite of financial incentives (The European Observatory on Health Care Systems 1999). New contracts were introduced in 2004 in which GPs earn points for meeting set targets on three main indicators of delivery of quality care namely clinical, organizational structure of the practice and patient experience. Additional bonus points are earned for prompt delivery of care (Roland 2004).[14]

Following the purchaser-provider split, purchasers and providers had autonomy to determine the nature of the contract to enter into with respective partners, the contracts included block, cost and volume and cost per case contracts (Greengross, Grant & Collini 1999). These payment methods generated perverse incentives for providers to retain financial surpluses without any cost saving measures (Chalkley, McVicar 2008). Additionally, providers did not

[14] Health outcomes are deemed to improve especially in reducing the mortality and morbidity from non-communicable diseases that constitute the highest burden of disease in the UK, illnesses excluded from the incentive system may be neglected (Roland 2004).

have incentives to increase elective activity, as extra work was not remunerated. Payment by result (PbR) introduced in 2005 links funds allocated to hospitals to elective activities undertaken. This payment arrangement creates incentives to reward good performance while reducing waiting times and decreasing average length of stay (Department of Health 2002).

4.3 Health financing

4.3.1 Revenue collection

There are four main financing sources for the NHS; general tax revenue, national insurance (NI) contributions, voluntary health insurance and out-of-pocket payments.

4.3.1.1 General revenue funds

The NHS is primarily tax-financed with central government revenue (The European Observatory on Health Care Systems 1999) that comprises an assortment of taxes collected by the central collecting authority (Adam, Browne 2006).

4.3.1.2 National Insurance (NI) contributions

These are mandated contributions for employers, employees and the self-employed. The financial contributions are paid to the National Insurance Scheme (NIS) (Busse et al. 2002). The contribution entitles contributors to social security benefits. The NI contributions are capped consisting of upper and lower limits for employee and employer contributions. The NI funds are further supplemented by an earmarked 1% levy on income introduced in 2003 (WHO 2006). Local government taxes seldom finance health care (Busse et al. 2002) but instead provide additional funding for social services mainly home care and residential care for the elderly (WHO 2006).

4.3.1.3 Private health insurance (PHI)

PHI is primarily of two types: employer- based (59%) as a work related health benefit; and, individual plans (31%) that are voluntarily purchased. The remaining 10% consists of voluntarily purchased PHI by certain employees, without the employer-sharing arrangement with professional bodies or trade unions acting as umbrella organizations (The European Observatory on Health Care Systems 1999). PHI expands consumer choice by offering access to a wider choice of providers, treatment facilities and timing of treatment by private hospitals and consultants. The services covered by PHI vary in scope and depth, which

depend on the price of the premium; the higher the premium the more comprehensive the cover and vice versa. PHI flows to providers of alternative care such as home nursing services, superior accommodation in private hospitals and cosmetic surgery. PHI does not extend benefits for resource-intensive services such as accident and emergency services (Foubister et al. 2006).

4.3.1.3.1 Health cash plans

They provide prepayment for health care payments made on an out-of-pocket basis. The benefit is a fixed proportion of the out-of-pocket charge (Foubister et al. 2006).

4.3.1.4 Out-of-pocket payments

These payments are made for services not covered with public funds such as use of amenity beds in NHS hospitals, prescription charges, dental care, and ophthalmic services (The European Observatory on Health Care Systems 1999).

4.3.2 Pooling

4.3.2.1 Coverage and composition of risk pools

There are two main pools: the general taxation pool and the PHI pool. The general tax pool covers 100% of the population, while the PHI covers 11% of the population (Foubister et al. 2006).

4.3.2.2 Pooling organizations

General revenue funds and NI contributions are collected by the central revenue collecting agency, Her Majesty's Revenue and Customs (HMRC). NI contributions are then channelled to the National Insurance Fund managed by Treasury, from which a fixed proportion is made to the NHS (Adam, Browne 2006). PHI contributions are collected by private insurers or professional intermediaries or paid directly by patients to insurers (Foubister et al. 2006).

4.3.2.3 Allocation mechanisms

Pooled funds from general revenue and NIS are allocated to the NHS through the primary care trusts (PCTs) (Department of Health 2008). This budgetary allocation from central authorities to PCTs is based on a weighted capitation formula determined by population size and weighted for age composition and other indicators of relative need for health care such as mortality, morbidity, social economic status and ethnicity. The allocation formula ensures equitable distribution of financial resources across geographical areas as it is based on

relative need for care (The European Observatory on Health Care Systems 1999). This ensures that all legal residents of the United Kingdom have access to health care services irrespective of geographical location, age, social economic status and so on.

4.3.3 Purchasing

4.3.3.1 Benefit package

The benefit package is not explicit. Instead health authorities have discretionary authority in influencing service delivery by making sure that providers avail needed health care to their resident population in line with the Patient's Charter introduced in 1991 (The European Observatory on Health Care Systems 1999).

Benefit package decisions are based on the recommendations of the National Institute for Clinical Excellence (NICE) (Gress et al. 2005, Rawlins 1999). NICE was established in 1999 to provide explicit guidelines on the cost-effectiveness of new and existing treatment regimes and technology (Appleby et al. 2009). NICE is an autonomous organization responsible for technology appraisal; development of clinical guidelines based on economic data; and for upholding clinical audits and confidential inquiries (Gress et al. 2005, Schreyögg et al. 2005). The decision criterion is based on both the incremental costs and incremental effectiveness of treatment and diagnostic procedures through which costs per Quality Adjusted Life Years (QALY) are comparable across QALY league tables. The accepted cost effectiveness threshold applied by NICE is a range between £20,000 and £30,000 per QALY gained (Appleby et al. 2009). The appraisal provided by NICE is based on directions from the Department of Health. The process is rigours and transparent involving key stakeholders including professionals and patient-focused organizations. Implementation of NICE guidelines is monitored by the Commission of Health Improvement (CHI) (Gress et al. 2005). Recently, NICE endorsed complementary therapies such as acupuncture and chiropractic therapy as additional therapies to conventional pain treatment regimens (Praities 2009).

Primary health care is subsidized by public monies and is free, provided by independent medical practitioners. In-patient care at NHS hospitals is free except for amenity care (private wards in NHS hospitals). Direct payments are levied for services not covered in the NHS but those with a lesser ability to pay are excluded from making the payments (Li 2006; The European Observatory on Health Care Systems 1999).

Dental care is provided by independent private dental practitioners commissioned by PCTs. Co-payments for dental services account for 80% of the cost of treatment but there is a co-payment ceiling for dental services (The European Observatory on Health Care Systems 1999). In the absence of adequate public financing for dental care, private financing of these services with dental insurance has grown (European Observatory on Health Care Systems 1999). It is estimated that one in every four patients has dental insurance. This is inequitable for those that cannot afford supplementary cover. The fact that patients meet all the costs of dental care with the exception of children, pregnant women and nursing mothers and social assistance recipients, erodes the NHI principle of equity in access for all.

4.3.3.2 Provider payment methods

General practitioners are reimbursed on a capitation basis with a mix of fixed allowances, health promotion payments and service payments or quality points. Hospital GPs and other health professionals are on salaried contracts. Specialists working for the NHS on a full time basis have flexible contracts that allow them to earn up to 10% of their gross income from private practice while those on maximum part-time contracts do not have restrictions on their earnings from private practice and can work unlimited hours in the private sector by giving up an eleventh of their NHS salary. In the private sector, fee-for-service is the preferred payment method (The European Observatory on Health Care Systems 1999).

Hospitals are reimbursed based on payment by result (PbR) which induces increases in elective output as hospital budgets are proportional to the increase in elective activity (Marini, Street 2007). PCTs now commission for acute care based on a cost-and volume basis using Healthcare Resource Groups (HRGs). HRGs are 'a tool for classifying patients into a manageable number of groups of cases that are clinically similar and that require similar levels of healthcare resources for diagnosis, treatment and care' (Department of Health 2002). This case-mix payment arrangement is advantageous due to the uniformity in prices nationally for interventions and conditions (Klein 2006), an approach that promotes risk sharing between relatively mild illnesses and chronic ailments.

4.3.3.3 Purchasers

PCTs arrange for health care on behalf of the population covering 50 000 to 250 000 people (The European Observatory on Health Care Systems 1999) by commissioning hospital care

from NHS trusts and primary care from independent practitioners (GPs, dentists, pharmacists and optometrists) and directly providing community care (Abbott, Procter & Iacovou 2009). Referrals to specialist care are done after consultation with respective GPs, assigning them the gatekeeper role (The European Observatory on Health Care Systems 1999).

4.3.4 Provision

Patients self-select to register with a GP in their respective geographical area. Registered patients have access to a wide range of preventative, diagnostic and curative primary care services (The European Observatory on Health Care Systems 1999) provided by general practitioners in PCTs within stipulated office hours. Private provision of primary health is limited in the NHS since GPs are not allowed to see their listed NHS patients privately or issue prescriptions. Additionally, only limited insurance companies give coverage for primary health coverage hindering growth in this area expect for walk-in clinics in cosmopolitan cities such as London. By 2002, there were 36 walk-in private clinics (Busse et al. 2002).

The hospital system is three tiered with community hospitals at the lowest level followed by district general hospitals at the middle level, which serve as the foundation of the hospital system. Tertiary hospitals are at the apex where specialized care such as neurosurgery, heart and liver transplants among other services are offered (The European Observatory on Health Care Systems 1999).

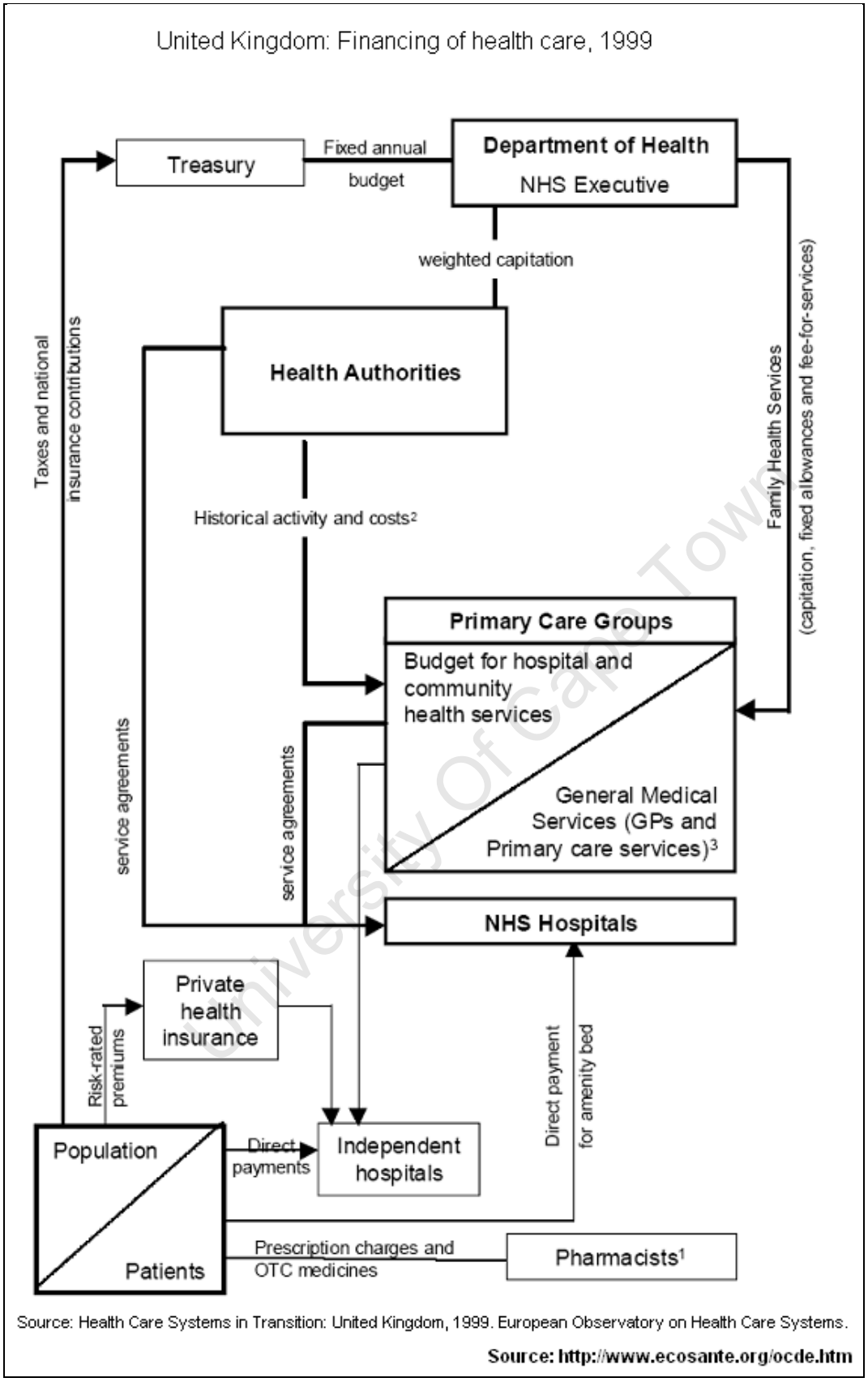


Figure 6: Health Care Financing, United Kingdom, 1999.

5.0 Mexico

5.1 Historical background

The health system dates back to 1943 when the Ministry of Health (MOH), the Children's Hospital and the Mexican Institute for Social Security or IMSS were established (Frenk et al. 2003b). Years later in 1959, another social security system the Institute of Social Services and Security for Civil Servants (ISSSTE) was established (Lloyd-Sherlock 2006, Knaul, Frenk 2005).

The Mexican health system is characterized by inequities in access, health status and financing (Barraza-Lloréns et al. 2002) and inefficiencies through the segregation of social health insurance systems serving different population groups based on employment status (Birn 1999). There are three main subsystems in the health system: (1) the social security systems that caters for salaried formal sector workers; (2) the government-funded health services through the SSA or Ministry of Health and limited nongovernmental organizations catering for the uninsured population; (3) the private sector (Barraza-Lloréns et al. 2002).

The institutions in the social security system are the *Instituto Mexicano del Seguro Social* (IMSS, Mexican institute for social security); the *Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado* (ISSSTE); the *Instituto de Seguridad para las Fuerzas Armadas Mexicanas* (ISFAM, for the armed forces), and medical services provided by and for the national oil company (PEMEX), the *Secretaría de la Defensa Nacional* (SDN, department of national defense), *the Secretaría de Marina* (SECMAR, navy department), and the *Sistema de Transporte Colectivo del Metro* (underground transport system).

IMSS is the largest social security system catering for private sector workers followed by the ISSSTE that insures government workers and their dependants (Maurer 2008, Knaul, Frenk 2005). Progress towards universal coverage through the social security schemes had been envisaged to occur incrementally (Laurell 2001) but interest groups fought the integration of different population groups into a single social security scheme and instead established parallel social security institutions insuring formal sector workers in the public and private sectors (Barraza-Lloréns et al. 2002). By 2001, IMSS and ISSSTE covered 95% of Mexico's formal labor force with the remaining 5% insured through other social security systems (Perez-Nunez et al. 2006).

The population outside the formal economy was treated as a 'residual' group accessing care in the government-funded health care facilities, the SSA or ministry of health or State Secretariats of Health (SESA) (Knaul, Frenk 2005). The benefit package was not only imprecise but also underfunded, with health care for this group financed primarily from a combination of federal general revenue funds and user fees and to a lesser extent states' general revenue funds (Frenk et al. 2006). However, in 1979, the IMSS took the responsibility of managing the non-contributory rural health program (IMSS-*Solidaridad*) which was financed by the federal government to provide health care for the uninsured in remote geographical areas (Laurell 2001). However, they had access to health insurance through two voluntary schemes: *Voluntaria al Regimen Obligatorio* for the self-employed and *Seguro de Salud para la Familia* for workers in the informal sector (Moise, Docteur 2007). Nonetheless, these two schemes were unsuccessful in scaling up full coverage to the population outside the formal sector. The recently introduced voluntary scheme *Seguro Popular* or Popular Health Insurance is viewed as a springboard to universal coverage and intends to insure previously uninsured Mexicans by 2010 (Laurell 2007, Frenk et al. 2006, Knaul et al. 2006, Knaul et al. 2005).

The private sector in Mexico is diverse in quality, level of care offered (Barraza-Lloréns et al. 2002), price and availability of care (Sosa-Rubí, Galárraga & Harris 2009). The sector is heterogeneous[15] comprising: private physician clinics; under resourced hospitals the majority with a bed capacity of fewer than 15 beds; and, a for-profit hospital sector consisting of several hospital groups but there has been a move towards monopolisation by one group (Laurell 2007) through mergers and acquisition.

5.2 Major reforms

5.2.1 Decentralization

Decentralization was targeted only at the delivery system for the uninsured population leaving the inequities in quality, spending and duplication of services within the social security systems to continue (Birn 1999). The main goal was to create a public health system in each of the 32 states by devolution of responsibility to states and integration of the physical

[15] Highly-trained specialists operate from state of the art medical facilities located in large cities catering for the upper and middle class segments of the population, that finance care through private health insurance or out-of-pocket payments (Sosa-Rubí, Galárraga & Harris 2009). The private clinics on the other hand are run physicians, often without residency training, and offer low quality care to the uninsured masses dissatisfied with care offered at public sector facilities (Barraza-Lloréns et al. 2002).

and human resources of the SSA and IMSS-*Solidaridad* subsystems. Decentralization began in the early 1980s but stalled in 1987 only to resume a decade later in 1996 and finally conclude in 1997 (Laurell 2001).

5.2.2 The 1995-1997 reforms

The 1995 reforms were presented as part of the National Development Plan (Lloyd-Sherlock 2006). The reform's objectives were to separate the IMSS's pension and social health insurance functions (Lloyd-Sherlock 2006, Laurell 2007) and restructure the organizational structure of the IMSS through a purchaser-provider split by introducing competitive purchasing (Laurell 2007). Medical Areas (MAs)[16] were created which totalled 139 IMSS medical units by 1998. There were four MAs per state managed by seven Regional Directorates (Laurell 2001). Each IMSS MA is responsible for 260 000 enrolees, and comprises of several primary care units and a secondary level hospital. Specialized care is contracted to the 41-IMSS run tertiary hospitals (Telyukov 2001). Given that the aim of the reform was to introduce competitive purchasing in the IMSS, private managed care organizations (MCOs) were legislated in 2000 to compete with MAs and have been in operation since then. MCOs provide a range of health services or contract out services from other providers for IMSS beneficiaries based on the *prestación indirect*[17] arrangement. Providers contracted by MCOs are reimbursed on a prospective capitation basis (Telyukov 2001).

5.2.3 2001-2006 Mexican Health reform

The 2000 World Health Organization (WHO) Report singled out catastrophic health spending as a major challenge in the Mexican health system, ranking it 144 out of 191 countries with inequitable financing (Knaul et al. 2005). These findings coincided with an in-depth national analysis in 2001 that highlighted the high levels of catastrophic expenditures among the poor and uninsured households (Knaul, Frenk 2005). Catastrophic expenditures affected 2 to 4 million households yearly (Knaul et al. 2005). Evidence from the detailed country-analysis brought to the public domain a reality that had been outside the health policy debate, that health costs could be a direct cause of impoverishment (Frenk 2006).[18] International and

[16] MAs are similar to primary care trusts (PCTs) in the United Kingdom.

[17] IMSS beneficiaries through their employers receive a per capita fee, which they can use to access care outside the IMSS subsystem either in other public institutions or in the private sector, a strategy that is aimed at improving private managed care (Telyukov 2001)

[18] The analysis revealed that in every trimester in 2000, 3.4% of the population suffered catastrophic health expenditures while 3.8% of the population was pushed into poverty as a result of health spending primarily

national analysis served as advocacy tools for the establishment of a system of social protection in health, which was actualized in 2003 when the new insurance law was passed (Knaul, Frenk 2005, Frenk et al. 2003a). On the 1st of January 2004, the General Health Law established the System for Social Protection in Health (SSPH) (Knaul, Frenk 2005). The voluntary *Seguro Popular* or Popular Health Insurance intends to cover the 50 million uninsured Mexicans by 2010 (Frenk et al. 2006).

5.3 Health financing

5.3.1 Revenue collection

There are four main funding sources: mandatory insurance continuations, private insurance health insurance, general tax revenue and out-of-pocket payments.

5.3.1.1 Social insurance contributions

These are mandatory payroll deductions made by formal sector workers towards the various employer-based social security systems. The contributions are shared among the employer and employee with auxiliary funds from the federal's general revenue funds (Frenk et al. 2006). The payroll deduction is 8.5% of base salary defined as 'contractual salary plus some fringe benefits' to which the employee and federal government share equally at 5% each while the employer pays the remaining 90% (Martinez-Vazquez 2001).

There are three main schemes catering for those outside the formal sector: *Voluntaria al Regimen Obligatorio*; *Seguro de Salud para la Familia* and *Seguro Popular*. The former two schemes are financed through subscriber contributions and a federal contribution (PAHO 2002)[19]. *Seguro Popular* was introduced in 2004 and is aimed at insuring the previously

households in the lowest income quintiles (Gakidou et al. 2006). Catastrophic expenditures were spread out across the income distribution with wealthier households experiencing catastrophic expenditures from hospitalization while less wealthy households incurred catastrophic expenditures from low cost items such as ambulatory care and drugs. The latter accounted for 75% of total health spending on an out-of-pocket basis in poor households compared to 34% in wealthier households (Knaul et al. 2006). Additionally, the rates of catastrophic spending were higher in the uninsured than the insured groups, at 9.9% and 2.2%, respectively (Knaul et al. 2005).

[19] The annual contribution ranges from US$100-250, while the federal subsidy is close to US$110(Lloyd-Sherlock 2006). The high premiums are an impediment to enroll in these voluntary schemes (Moise, Docteur 2007). With the exemption of the *Seguro Popular* which covers a comprehensive range of health services, the other two schemes offer benefits similar to those offered to formal sector workers but with key exclusions: individuals with pre-existing conditions are not eligible to enrol, while some surgical procedures and expensive treatments are not covered (PAHO 2002).

uninsured Mexicans (Frenk 2006). The goal is to enroll 14.3% of the uninsured population per annum which translates to 11 million households (Knaul, Frenk 2005).

The financing structure for mandatory insurance is tripartite in nature with differing roles and responsibilities among the various funding entities (federal, state and households), an arrangement that enhances solidarity and co-responsibility between governments and families (Frenk et al. 2006).

The first component is a fixed allocation per family or 'social quota' funded by the federal government adjusted periodically to factor in inflation. This allocation guarantees equal redistribution of finance resources (general revenue funds) among all population groups and upholds solidarity (Frenk et al. 2006). The federal social quota for *Seguro Popular* was 15% of the mandatory minimum wage in 2004 (Knaul et al. 2005).

The second component is the co-responsible contributor which guarantees solidarity in each population group and redistribution among states. For IMSS the private sector employer is the co-responsible contributor and government for ISSSTE. Since there isn't an employer for *Seguro Popular* the co-responsibility is between state and federal governments that takes into account the variations in development across states. The federal contribution is on average 1.5 times higher than the social quota with poorer states receiving higher increments than wealthier ones (Knaul, Frenk 2005).

The third component is the pre-paid family contribution, which is progressive and redistributes family income. For IMSS and ISSSTE beneficiaries, the contribution is a monthly payroll deduction set at a progressive proportional rate to the wage (Frenk et al. 2006).

5.3.1.2 General revenue funds

These are derived from federal and state taxation. Federal general tax revenue fully subsidizes the contributions for families in the lowest income quintiles affiliated to *Seguro Popular*, and partially for those in other income quintiles in the informal sector and formal sector workers (Knaul, Frenk 2005).

5.3.1.3 Out-of-pocket payments

This financing source accounts for the largest source of financing for the health system. Out-of- pocket payments made are for user fees charged at the point of use in SSA facilities for inpatient care, dental care, and primary care services with the exception of maternal and child care (Birn 1999). Patients also pay directly for services in the private sector and for medicines at community pharmacies. An estimated 27% of the out-of-pocket spending goes towards consultations while 47.2% goes to medicines (Pagán et al. 2006). The fee-for service payment method in the private sector (Perez-Nunez et al. 2006) can be singled out as the main cost driver for the high out-of-pocket spending in Mexico.

5.3.1.4 Private health insurance

Private insurance performs a supplementary role in Mexico. PHI is often employer-based or voluntarily purchased by individuals. The annual premium charges range from $3000-$4000 with extensive copayments and deductibles (Kirby 2006). Most subscribers of PHI are high-income groups, or the few employees covered by employer-based health insurance. PHI is thus beyond the reach of most Mexicans.

5.3.3 Pooling

There are three fund pools in this health system: the mandatory social health insurance pool; the general tax revenue pool; and the PHI pool.

5.3.3.1 Pooling organizations

Federal general tax revenue is collected by the Tax Administration Service while social insurance contributions are collected and administered by two separate organizations: the Mexican Institutes of Social Security; and, the Housing Fund (PWC 2009a).

5.3.3.2 Allocation mechanism

The allocation formula takes into account health needs and level of socio economic development across states by tackling previous historical imbalances and inequities and differential health needs in the population. The new funding arrangement changes the incentive structure for state governments and providers since current state health budgets are attached to *Seguro Popular* affiliation. The allocation is a demand-driven funding approach that incentivizes states to enroll more families in return for increased federal transfers (Frenk et al. 2006, Knaul, Frenk 2005).

The allocation of general tax revenue is divided between federal and state revenue. Federal allocation under the System for Social Protection in Health (SSPH) is divided into four components: health related public goods that include stewardship roles of the Ministry of Health or SSA; community health services; non-catastrophic personal health services and high cost personal health services (Knaul, Frenk 2005).

The stewardship functions (planning, information, evaluation, research and human resource development are financed through the regular Ministry of Health (MoH) budget (Frenk et al. 2006).

Personal health services financed through *Seguro Popular* are divided between an essential benefit package comprising both primary and secondary level interventions and high cost tertiary care. The latter is financed through a catastrophic fund, Fund for Protection against Catastrophic Expenditures (*Fondo de Protection contra Gastos Catastróficos,* FPGC). The essential package is financed with state level funds while the catastrophic services are aggregated at a national level because the small risk pool at the state level is inadequate for equitable risk pooling (Frenk et al. 2006). Furthermore, the provision of these services at tertiary facilities, which are managed by the federal government necessitates the aggregation at federal level. The FPGC receives 8% of the federal social quota plus the federal and state solidarity contributions (Knaul, Frenk 2005). An additional 2% is set aside for infrastructure development in marginalized areas and a reserve fund of 1% of the total is designated for unexpected increases in service utilization and provisional payments across all states (Frenk et al. 2006). The remaining social quota and solidarity contributions are allocated to states to finance the essential benefit package under *Seguro Popular* while the entire family contribution is collected and maintained at the state level (Frenk et al. 2006, Knaul, Frenk 2005).

5.3.4 Purchasing

5.3.4.1 Benefit package

The benefit package under *Seguro Popular* is expanded annually based on the emerging diseases (epidemiological profile), technological advancements and resource availability based on cost-effectiveness analyses and ethical deliberations on the socially acceptable criteria (Frenk et al. 2006). The essential benefit package comprises 249 interventions

accounting for 95% of all hospital admissions and 17 highly complex interventions under the catastrophic fund (Frenk et al. 2006).

For those insured under social security schemes such as the IMSS, services that are covered by the mandatory premium are listed under the Comprehensive Health Package. Health care services excluded from this benefit package can be accessed through supplementary voluntary health insurance (Laurell, 2001).

5.3.4.2 Provider payment mechanisms

Hospitals are reimbursed on a fee-for-service basis in the private sector while public hospitals are allocated global budgets (Knaul, Frenk 2005). Voluntary participating hospitals (15 in total) and clinics under the IMSS social security system are reimbursed based on the Diagnostic Related Groups (DRG) payment method introduced in 1999 (Telyukov 2001). Prospective capitation is used to reimburse private MCOs and IMSS affiliated MAs (Laurell 2007, Telyukov 2001).

5.3.4.3 Purchasers

The IMSS Medical Areas (MAs) have a dual role as providers and purchasers. Private managed care organizations (MCOs) also actively purchase health services on behalf of IMSS beneficiaries from private hospitals, MCOs-run facilities or the IMSS MAs (Telyukov 2001).

5.3.5 Provision

For the insured formal sector, health care access is free at the point of use (Frenk et al. 2006) at medical facilities owned and funded by each social security scheme, which also employs its health personnel (Anderson 2006). Health services for the uninsured are decentralized to state governments through a primary health care model with emphasis on public health initiatives such as immunization and reproductive and maternal health (Frenk et al. 2003a).

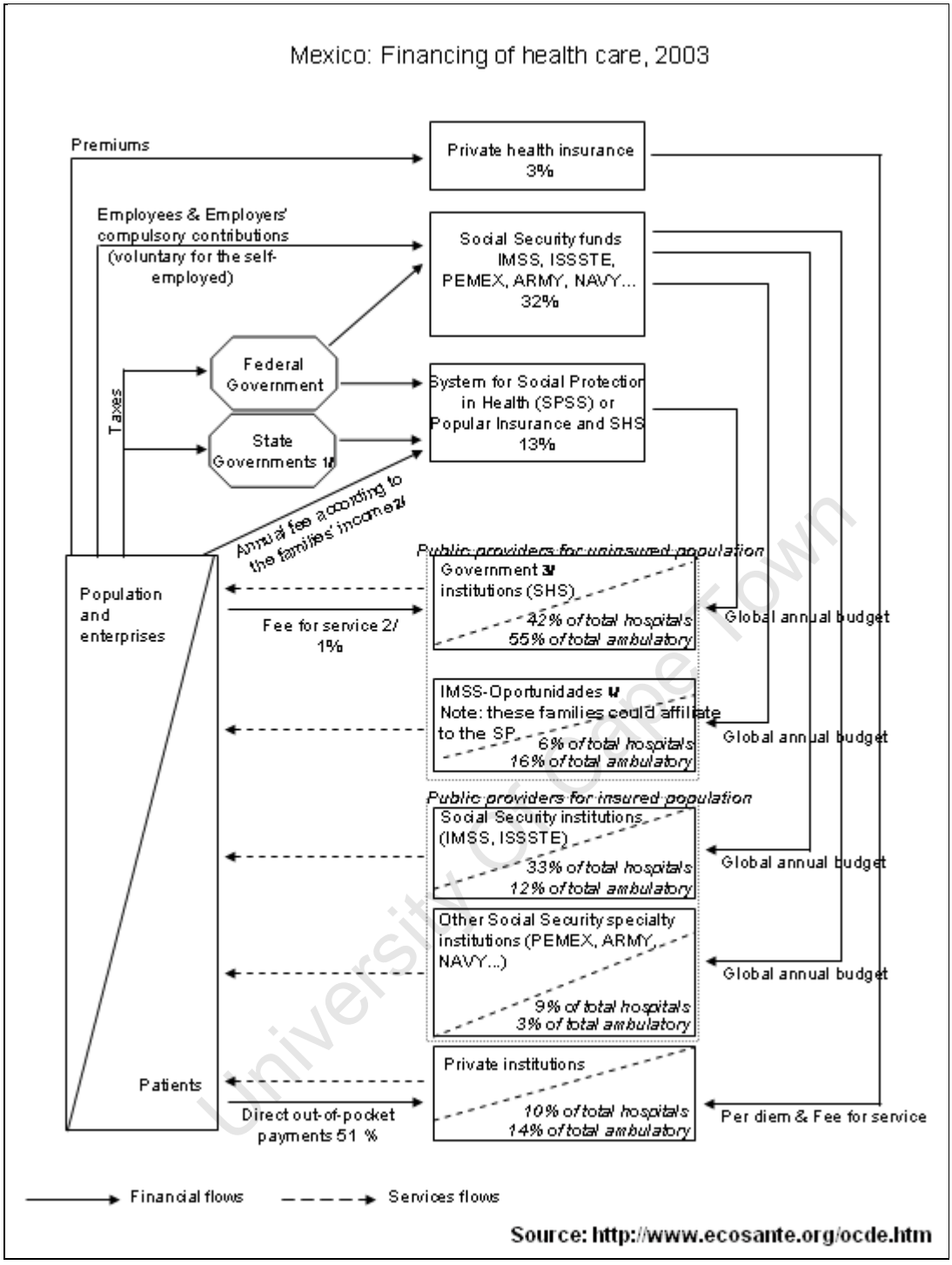


Figure 7 Health Care Financing Mexico, 2003

6.0 Conclusion

Universal coverage has been attained differently in the four health systems. Canada and the United Kingdom have achieved 100% coverage through general tax revenue with an element of mandatory contributions for formal sector workers and the self-employed in the United Kingdom. These two health systems operate a single payer that purchases health care services from public providers in the United Kingdom and not-for profit providers in Canada. There is minimal contracting from for-profit private providers in the two health systems. Korea and Mexico on the other hand achieved universal coverage or are transiting to universal coverage, respectively, through a multiple-payer system (although Korea now has a single payer). Mandatory risk pooling through social insurance has ensured full population coverage in Korea but full population coverage is yet to be attained in Mexico's informal sector because of weakly enforced contribution arrangements and widespread evasion.

All four countries are diverse in the organizational structure, which accounts for efficiency in provision in some health systems and inequities and inefficiencies in others. With respect to purchasing of health care services, purchasers in the four health systems possess monopsony purchasing power. However, in spite of this leverage over providers, purchasers do not engage in active purchasing to improve efficiency in delivery of services. The PCTs in the United Kingdom are the only purchaser seen as exercising the monopsonistic purchasing power in purchasing decisions albeit not actively as would be expected of a monopsonistic purchaser. The PCTs rather engage in collaborative relationships with public providers for the most part since contracting from private providers is limited. Elsewhere in Canada and Korea, physicians and specialists wield stronger bargaining power than the monopsonistic purchasers the RHAs and the NHIC in Canada and Korea, respectively. This has resulted in inefficiencies in provision through unwarranted remuneration to providers through over-servicing under the fee-for-service provider payment method which gives providers strong economic incentives to over-service. This inefficiency is attributed to lack of stringent supply-side regulation particularly in Korea. On the other hand, Mexico's public delivery system (social security system and state-run health facilities) is inefficient due to widespread service duplication. Table 3 gives a broad sweep of the health financing sub-functions (revenue collection, pooling and purchasing) as well as the provision of services in the four OECD countries

The article manuscript, in the next section, gives more explicit detail of the experiences of these countries by critically analysing health financing functions (revenue collection, pooling and purchasing of health services) to determine the functionality of these components in each health system based on the concepts of equity, efficiency, sustainability and feasibility.

Table 3: Summary of revenue collection, pooling, purchasing and provision of health services in four OECD countries.				
	Canada	**Republic of Korea**	**Mexico**	**United Kingdom**
Revenue Collection				
Source of funds	Domestic sources from households and firms. Four main sources:- • GTR • PHI (Complementary and duplicate) • OOP payments	Domestic sources from households and firms. Four main sources:- • SHI • GTR • OOP payments • Supplementary PHI	Domestic sources from households and firms. Four main sources:- • GTR • SHI • PHI • OOP payments	Domestic sources from households and firms. Four main sources:- • GTR • NI contributions • PHI • OOP payments
Contributions mechanisms	• Progressive income taxes • Monthly deductions of contributions by insurance companies for employer-based complementary cover • Duplicate PHI often purchased by individuals of a higher SES • Direct payment of services not publicly insured or for privately delivered care	• Mandatory contributions shared equally between employer and employee. Contributions proportional to salary and thus regressive. Monthly payroll deductions for the self employed after income assessment. • GTR fully subsidizes contributions for the poor, unemployed and elderly. Partial for the self-employed and low income earners, the disabled and those aged above 65. • OOP payments made for co-payment on insured services and provider charges for uninsured services.	• Progressive income taxes. • Low-income earners exempt from income taxes. • SHI tripartite in nature shared among federal, state and households or companies. • OOP payments made for user fees in public sector facilities, for prescription charges and user charges for privately delivered care.	• Progressive income taxes • NI contributions made by employees, employers and the self-employed
Collecting organizations	The Canada Revenue Agency collects federal taxes**.**	• The National Tax Service (NTS) collects taxes • Mandatory contributions collected and managed by the National Health Insurance Corporation (NHIC).	The Secretary of Finance and Public Credit or the Hacienda is the tax collection authority The *Seguro Popular* scheme is managed by the National Commission of Social Health Protection. The Mexican Institute for Social Security and the Housing Fund collect contributions social security schemes.	• Taxes and NI contributions are collected by the central collecting agency, Her Majesty's Revenue and Customs (HMRC). • PHI contributions are collected directly from enrolees by insurance companies

Pooling of funds				
Coverage & composition of pools	3 main fund pools • GTR pool covers 100% of the population • Employer based PHI covers 65% of the population • Duplicate PHI pool :- coverage undetermined	3 main fund pools • GTR covers 4% of the population • SHI pool covers 96% of the population • PHI covers 2-4% of the population.	3 main pools • GTR pool covers 50% of the population • SHI pools cover 50% of the population • PHI covers about 3% of the population	• 2 main pools • GTR covers 100% of the population • PHI covers 12.8% of the population
Allocation mechanisms	• Federal cash transfer on a per capita basis • Provincial governments to RHAs based on global budgets. • Three provinces use population-based funding in allocating funds to RHAs and Ontario province in allocating financial resources for home care and community-based services. • Insurers reimburse providers based on claims made by the insured to the health insurance company for medical expenses paid	• Lack of an explicit allocation mechanism • A central review agency HIRA reviews all claims while the NHIC reimburses providers based on the recommendations by HIRA.	• Population based funding in allocating federal GTR to states based on number of *Seguro Popular* enrolees in a state.	• Needs-based allocation formula applied in allocating resources to PCTs. • Insurers reimburse providers directly while specialists bill the patients who then claim reimbursement from the insurer
Purchasing of services				
Benefit package	Implicit benefit package with explicit exclusions. Medically necessary services at primary, secondary, tertiary level offered free of charge in by not-for-profit providers. Out-of-hospital prescriptions not publicly insured. Social assistance recipients and the	The benefit package is explicit and covers a wide range of health care services. Curative services are the main insured services. High co-payments on insured services. Outpatient services:-30% to 55%,	The essential benefit package under *Seguro Popular* comprises 249 interventions accounting for 95% of all hospital admissions and 17 highly complex interventions under the catastrophic fund. BP is without co-payments for SP beneficiaries Comprehensive benefit without co-	Implicit benefit package with explicit exclusions mainly dental care, eye care, alternative therapy and cosmetic surgery. 99% of the population registered with a PCTs. Primary, secondary and tertiary care is free except for amenity care. Prescription drugs are subsidized but a flat rated fee is charged on all

	elderly meet the cost of outpatient prescriptions through tax-financed provincial drug plans or Pharmacare.	Inpatient services:- 10% to 20% Prescription drugs:-30% Deductible of $4 for each unit of service.	payments for SSS beneficiaries.	prescriptions. An estimated 85% of prescription items dispensed do not qualify for the prescription fee.
Provider payment mechanisms	• Salary main provider payment method for all cadres of nursing personnel and pharmacists • Physicians reimbursed on a fee-for-service basis contracts are applicable. • Hospitals and clinics receive global budget transfers from RHAs	• Hospital doctors and other health personnel are on salary contracts. • Public and private providers reimbursed on a fee-for-service basis. • Resource-based relative value (RBRV)-based payment method for outpatient office-based physicians. • Few hospitals reimburse inpatient services based on the prospective Diagnostic Related Groups (DRG) -payment system.	• Private providers (hospitals and physicians) reimbursed on a fee-for-service basis. • Prospective capitation is used to reimburse private MCOs and IMSS affiliated MAs • Some hospitals (15 in total) and clinics under the IMSS social security system are reimbursed based on the Diagnostic Related Groups (DRG).	GPs are paid on a capitation basis. Hospital doctors and other health professionals are on salaried contracts. Specialists have flexible service contracts. Full time salary contracts for the NHS. FFS in the private sector. Hospitals reimbursed based on Healthcare Resource Groups (HRGs).
Provision of services	• Private provision by not-for-profit providers. Non-profit hospitals funded through global budgets. For-profit private hospitals not eligible for block funding	• Approximately 90% of acute general and acute hospitals and 100% of ambulatory clinics privately owned. • Public sector controls fewer than 10% of acute hospitals. Mainly tuberculosis, leprosy and psychiatric hospital, public health centers, the National Medical Centre and provincial medical centers.	• Over 4 000 hospitals • Private sector largest provider. Controls close to 70% of acute care dominated by various hospital groups. • 26.2% hospitals in the public sector. 85% general and 13.2% general and tertiary hospitals, respectively. • Non-profit providers such as the Red Cross provide HIV/AIDS-related services and reproductive health services.	• Hospital system three tiered with community hospitals at the lowest level, district general hospitals at the middle level, and tertiary facilities at the apex • Private sector controls <5% of total hospital beds • Secondary care provided in the general acute care NHS Trusts (>200) • Over 230 private hospitals dominated by 5 hospital groups.

References 2

Abbott, S., Procter, S. & Iacovou, N. 2009, "NHS Purchaser–Provider Relationships in England and Wales: The View from Primary Care", *Social Policy & Administration,* vol. 43, no. 1, pp. 1-14.

Adam, S. & Browne, J. 2006, *A survey of UK tax system*. *T*he Institute of Fiscal Studies. Briefing notes No. 9.

Anderson, G.F. 1989, "Universal health care coverage in Korea", *Health affairs (Project Hope),* vol. 8, no. 2, pp. 24-34.

Anderson, T. 2006, "The structuring of health systems and the control of infectious disease: looking at Mexico and Cuba.", *Revista panamericana de salud pública,* vol. 19, no. 6, pp. 423.

Angell, M. 2008, "Privatizing health care is not the answer: lessons from the United States", *Canadian Medical Association Journal,* vol. 179, no. 9, pp. 916-919.

Appleby, J., Devlin, N., Parkin, D., Buxton, M. & Chalkidou, K. 2009, "Searching for cost effectiveness thresholds in the NHS", *Health Policy,* vol. 91, no. 3, pp. 239-245.

Barraza-Lloréns, M., Bertozzi, S., Gonzalez-Pier, E. & Gutiérrez, J.P. 2002, "Addressing Inequity In Health And Health Care In Mexico.", *Health affairs,* vol. 21, no. 3, pp. 47.

Bennett, S. 2004, "The role of community-based health insurance within the health care financing system: a framework for analysis", *Health policy and planning,* vol. 19, no. 3, pp. 147-158.

Birn, A. 1999, "Federalist flirtations: the politics and execution of health services decentralization for the uninsured population in Mexico, 1985-1995.", *Journal of public health policy,* vol. 20, no. 1, pp. 81.

Blomqvist, A. & Xu, J. 2001, "Pharmacare in Canada: Issues and Option*s* ", Working Paper Series 01-01 edn, Health Care Canada.

Busse, R., Dixon, A., Krasnik, A., Leon, S., Paris, V., Polton, D., Rico, A., Robinson, R., Sandier, S.'.T., S., Vallgarda, S. & Vrangbaek, K. 2002, "Health care systems in eight countries: trends and challenges.", The European Observatory on Health Care Systems, London, UK.

Carrin, G., Mathauer, I., Xu, K. & Evans, B.D. 2008, "Universal coverage of health services: tailoring its implementation.".*Bulletin of the World Health Organization,* vol. 86, no. 11, pp. 857.

Carrin, G. & James, C. 2005, "Social Health Insurance: Key Factors Affecting the Transition Towards Universal Coverage", *International Social Security Review,* vol. 58, no. 1, pp. 45-64.

Carrin, G., James, C. & Evans, D. 2005. *Achieving Universal Health Coverage: Developing the health financing system*. Technical Briefs for Policy Makers Number 1. World Health Organization.

Chalkley, M. & McVicar, D. 2008, "Choice of contracts in the British National Health Service: An empirical study", *Journal of health economics*, vol. 27, no. 5, pp. 1155-1167.

Davis, J. 2004, "Let regionalization continue to evolve.", *Health Care Papers*, vol. 5, no. 1, pp. 50-54.

Deber, R.B. 2003, "Health care reform: lessons from Canada", *American Journal of Public Health*, vol. 93, no. 1, pp. 20-24.

Denis, J., Contandriopoulos, D. & Beaulieu, M. 2004, "Regionalization in Canada: a promising heritage to build on", *Healthcare papers*, vol. 5, no. 1, pp. 40.

Department of Finance 2009, 2009-01-01-last update, *A history of the health and social transfers* [Homepage of Department of Finance, Canada], [Online]. Available: http://www.fin.gc.ca/fedprov/his-eng.asp [2009, 03-18].

Department of Health 2008, 8 December 2008-last update, *Report of the Advisory Committee on Resource Allocation.* [Homepage of Department of Health, United Kingdom], [Online]. Available: http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_091483.pdf [2009, 2-26].

Department of Health 2002, , *Reforming NHS financial flows introducing payment by results*. Available: http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4005300 [2009, 3-11].

Detsky, A.S. & Naylor, C.D. 2003, "Canada's health care system--reform delayed", *The New England journal of medicine*, vol. 349, no. 8, pp. 804-810.

Dhalla, I. 2007, "Private health insurance: An international overview and considerations for Canada", *Health Care Quarterly*, vol. 10, no. 4, pp. 89-96.

Flood, C.M. & Archibald, T. 2001, "The illegality of private health care in Canada", *Canadian Medical Association Journal*, vol. 164, no. 6, pp. 825.

Forest, P. & Palley, H.A. 2008, "Examining fiscal federalism, regionalization and community-based initiatives in Canada's health care delivery system", *Social Work In Public Health*, vol. 23, no. 4, pp. 69-88.

Foubister, T., Thomson, S., Mossialos, E. & McGuire, A. 2006, *Private medical insurance in the United Kingdom*, The Cromwell Press, Trowbridge.

Frenk, J. 2006, "Bridging the divide: global lessons from evidence-based health policy in Mexico.", *The Lancet*, vol. 368, no. 9539, pp. 954.

Frenk, J., Gonzalez-Pier, E., Lezana, A.M. & Knaul, M.F. 2006, "Comprehensive reform to improve health system performance in Mexico.", *The Lancet*, vol. 368, no. 9546, pp. 1524.

Frenk, J., Sepulveda, J., Gomez-Dantes, O. & Knaul, F. 2003a, "Evidence-based health policy: three generations of reform in Mexico.", *The Lancet*, vol. 362, no. 9396, pp. 1667.

Frenk, J., Sepulveda, J., Gomez-Dantes, O. & Knaul, F. 2003b, "Evidence-based health policy: three generations of reform in Mexico.", *The Lancet*, vol. 362, no. 9396, pp. 1667.

Frenk, J., Gonzalez-Pier, E., Gomez-Dantes, O., Lezana, A.M. & Knaul, M.F. 2006, "Comprehensive reform to improve health system performance in Mexico.", *The Lancet*, vol. 368, no. 9546, pp. 1524.

Gakidou, E., Lozano, R., González-Pier, E., Abbott-Klafter, J., Barofsky, J.T., Bryson-Cahn, C., Feehan, D.M., Lee, D.K., Hernández-Llamas, H. & Murray, C.J.L. 2006, "Assessing the effect of the 2001-06 Mexican health reform: an interim report card.", *The Lancet*, vol. 368, no. 9550, pp. 1920.

Gottret, P. & Schieber, G. 2006, *Health Financing Revisited: A Practitioner's Guide*, World Bank, Washington.

Greengross, P., Grant, K. & Collini, E. 1999, *The history and development of the UK National Health Service 1948-1999*. 2nd ed. London. Department for International Development (DFID).

Gress, S., Niebuhr, D., Rothgang, H. & Wasem, J. 2005, "Criteria and procedures for determining benefit packages in health care. A comparative perspective", *Health policy (Amsterdam, Netherlands)*, vol. 73, no. 1, pp. 78-91.

Health Canada 2009, 2009-02-09-last update, *Canada Health Act Annual Report 2007-2008* [Homepage of Health Canada], [Online]. Available: http://www.hc-sc.gc.ca/hcs-sss/pubs/cha-lcs/2008-cha-lcs-ar-ra/index-eng.php [2009, 10-15] .

Hirdes, J.P. 2001, "Long-Term Care Funding in Canada: A Policy Mosaic", *Journal of aging & social policy*, vol. 13, no. 2, pp. 69.

Hsiao, W.C. 2007, "Why is a systemic view of health financing necessary?", *Health affairs (Project Hope)*, vol. 26, no. 4, pp. 950-961.

Hurley, J. 2004, "Regionalization and the allocation of health care resources to meet population health needs", *Healthcare Papers*, vol. 5, no. 1, pp. 34-39.

Hussey, P. & Anderson, G.F. 2003, "A comparison of single- and multi-payer health insurance systems and options for reform", *Health Policy*, vol. 66, no. 3, pp. 215-228.

Hutchison, B., Abelson, J. & Lavis, J. 2001, "Primary care in Canada: so much innovation, so little change", *Health affairs (Project Hope)*, vol. 20, no. 3, pp. 116-131.

Jegers, M., Kesteloot, K., De Graeve, D. & Gilles, W. 2002, "A typology for provider payment systems in health care", *Health policy (Amsterdam, Netherlands)*, vol. 60, no. 3, pp. 255-273.

Jeong, H.S. 2005, "Health care reform and change in public-private mix of financing: a Korean case", *Health policy (Amsterdam, Netherlands)*, vol. 74, no. 2, pp. 133-145.

Jong-Chan Lee 2003, "Health Care Reform in South Korea: Success or Failure?", *American Journal of Public Health*, vol. 93, no. 1, pp. 48-51.

Kang, S., Kwon, Y.D., You, C.H., Noh, J.H. & Kim, S. 2009, "The benefits of supplementary private health insurance for healthcare utilization and survival among stomach cancer patients", *The Tohoku journal of experimental medicine*, vol. 217, no. 3, pp. 243-250.

Kim, H.J., Chung, W. & Lee, S.G. 2004, "Lessons from Korea's pharmaceutical policy reform: the separation of medical institutions and pharmacies for outpatient care", *Health policy (Amsterdam, Netherlands)*, vol. 68, no. 3, pp. 267-275.

Kirby, G.E. 2006, "A comparative analysis of stakeholder power in the Mexican and U.S. health care systems.", *Journal of health social policy*, vol. 22, no. 2, pp. 13.

Klein, R. 2006, "The troubled transformation of Britain's National Health Service", *The New England Journal of Medicine*, vol. 355, no. 4, pp. 409-415.

Knaul, M.F., Arreola-Ornelas, H., Mendez-Carniado, O. & Miranda-Munoz, M. 2005, *Preventing impoverishment, promoting equity and protecting household from financial crisis: Universal Health Insurance through institutional reform in Mexico*, Global Development Network. [Online] Available: http://depot.gdnet.org/gdnshare/pdf2/gdn_library/awards_medals/2005/medals_cat3_first.pdf [2009, 05-15].

Knaul, M.F., Arreola-Ornelas, H., Mendez-Carniado, O., Bryson-Cahn, C., Barofsky, J., Maguire, R., Miranda, M. & Sesma, S. 2006, "Evidence is good for your health system: policy reform to remedy catastrophic and impoverishing health spending in Mexico.", *The lancet*, vol. 368, no. 9549, pp. 1828.

Knaul, M.F. & Frenk, J. 2005, "Health insurance in Mexico: achieving universal coverage through structural reform.", *Health affairs*, vol. 24, no. 6, pp. 1467.

Kutzin, J. 2008, *Health financing policy: a guide for decision-makers*. Health Financing Policy Paper.World Health Organzation

Kutzin, J. 1995, *Experience with organizational and financing reform of the health sector*. 1st edn, Current Concerns Paper Number 8. World Health Organization: Division of Strengthening Health Services, Geneva.

Kutzin, J. 2001, "A descriptive framework for country-level analysis of health care financing arrangements", *Health policy (Amsterdam, Netherlands)*, vol. 56, no. 3, pp. 171-204.

Kwon, S. 2009, "Thirty years of national health insurance in South Korea: lessons for achieving universal health care coverage", *Health Policy and Planning, Hea Pol and Plan*, vol. 24, pp. 63-71.

Kwon, S. 2003a, "Health care financing reform and the new single payer system in the Republic of Korea: Social solidarity or efficiency?", *Internal Social Security Review*, vol. 56, no. 1, pp. 75-94.

Kwon, H. & Chen, F. 2008, "Governing universal health insurance in Korea and Taiwan", *International Journal of Social Welfare*, vol. 17, no. 4, pp. 355-364.

Kwon, S. 2003b, "Payment system reform for health care providers in Korea", *Health Policy and Planning*, vol. 18, no. 1, pp. 84-92.

Kwon, S. 2007, "The Fiscal Crisis of National Health Insurance in the Republic of Korea: In Search of a New Paradigm", *Social Policy & Administration*, vol. 41, no. 2, pp. 162-178.

Kwon, S. 2003c, "Pharmaceutical reform and physician strikes in Korea: separation of drug prescribing and dispensing", *Social science & medicine*, vol. 57, no. 3, pp. 529.

Kwon, S. & Reich, M.R. 2005, "The Changing Process and Politics of Health Policy in Korea", *Journal of Health Politics, Policy & Law*, vol. 30, no. 6, pp. 1003-1025.

Laurell, C.A. 2007, "Health system reform in Mexico: a critical review.", *International journal of health services*, vol. 37, no. 3, pp. 515.

Laurell, C.A. 2001, "Health reform in Mexico: the promotion of inequality.", *International journal of health services*, vol. 31, no. 2, pp. 291.

Leatt, P., Pink, G.H. & Guerriere, M. 2000, "Towards a Canadian model of integrated healthcare", *Healthcare papers*, vol. 1, no. 2, pp. 13-35.

Lewis, S. & Kouri, D. 2004, "Regionalization: making sense of the Canadian experience", *Healthcare papers*, vol. 5, no. 1, pp. 12-31.

Li, S. 2006, *Health care financing policies of Canada, the United Kingdom and Taiwan.*

Light, D.W. 2003, "Universal health care: lessons from the British experience", *American Journal of Public Health,* vol. 93, no. 1, pp. 25-30.

Lloyd-Sherlock, P. 2006, "When Social Health Insurance Goes Wrong: Lessons from Argentina and Mexico.", *Social policy administration,* vol. 40, no. 4, pp. 353.

Madore, O. 2006, *Duplicate private health insurance: potential implications for Quebec and Canada*, The Parliamentary Information and Research Service, Quebec.

Marchildon, P.G. 2005, *Health Systems in Transition, Canada*. The European Observatory on Health Systems and Policies.

Marini, G. & Street, A. 2007, "A transaction costs analysis of changing contractual relations in the English NHS", *Health policy (Amsterdam, Netherlands),* vol. 83, no. 1, pp. 17-26.

Martinez-Vazquez, J. 2001, *Mexico: an evaluation of the main features of the tax system*. International Studies Program, Andrew Young School of Policy Studies, Georgia State University, paper0112.

Maurer, J. 2008, "Assessing horizontal equity in medication treatment among elderly Mexicans: which socioeconomic determinants matter most?", *Health economics,* vol. 17, no. 10, pp. 1153.

McIntyre, D. 2007, *Health Financing. Learning from experience: Health care financing in low- and middle-income countries,* 1st edn, Global forum for health research, Geneva.

McPake, B. & Kutzin, J. 1997, *Methods for evaluating health system performance and the effects of reforms*.

Mills, A. 2007, "Strategies to achieve universal coverage: are there lessons from middle income countries?", *The Health Systems Knowledge Network,* , pp. 1-46.

Moise, P. & Docteur, E. 2007, *Pharmaceutical pricing and reimbursement policies in Mexico.*

Mossialos, E. & Thomson, S. 2004, *Voluntary health insurance in the European Union,* 1st edn, European Observatory on Health Systems and Policies: World Health Organization Regional Office for Europe, Brussels, Belgium.

Musgrove, P. 2000, "Health insurance: the influence of the Beveridge Report", *Bulletin of the World Health Organization,* vol. 78, no. 6, pp. 845-846.

NHIC 2009, , *National Health Insurance Corporation: Financial resources*. Available: http://www.nhic.or.kr/eng/ [2009, 05,21] .

O'Donnell, O., van Doorslaer, E., Rannan-Eliya, R., Somanathan, A., Adhikari, S.R., Akkazieva, B., Harbianto, D., Garg, C.C., Hanvoravongchai, P., Herrin, A.N., Huq, M.N., Ibragimova, S., Karan, A., Kwon, S., Leung, G.M., Lu, J.R., Ohkusa, Y., Pande, B.R., Racelis, R. & Tin, K. 2008, "Who pays for health care in Asia?", *Journal of health economics*, vol. 27, no. 2, pp. 460-475.

OECD 2004, *Proposal for a taxonomy of health insurance*. OECD Study on Private Health Insurance

Pagán, J.A., Ross, S., Yau, J. & Polsky, D. 2006, "Self-medication and health insurance coverage in Mexico", *Health Policy*, vol. 75, no. 2, pp. 170-177.

PAHO 2007, *Mexico*, 2nd ed. Pan American Health Organization (PAHO), Washington, D.C.

PAHO 2002, *Program on organization and management of health systems and services*. Pan American Health Organization (PAHO), Washington, D.C.

Palmer, S. & Torgerson, D.J. 1999, "Economic notes: definitions of efficiency", *BMJ (Clinical research ed.)*, vol. 318, no. 7191, pp. 1136.

Peabody, J.W., Lee, S.W. & Bickel, S.R. 1995, "Health for all in the Republic of Korea: one country's experience with implementing universal health care", *Health policy (Amsterdam, Netherlands)*, vol. 31, no. 1, pp. 29-42.

Perez-Nunez, R., Medina-Colis, C.E., Maupome, G. & Vargas-Palacios, A. 2006, "Factors associated with dental health care coverage in Mexico: findings from the National Performance Evaluation Survey 2002–2003.", *Community dentistry and oral epidemiology*, vol. 34, no. 5, pp. 387.

Praities, N. 2009, "NICE drives back pain referral rise", *Pulse*, vol. 69, no. 27, pp. 11-11.

PWC 2009a, *Paying Taxes 2009: The global picture*. The World Bank

PWC 2009b, *Total tax Contribution 2008: Canada's tax regime: complexity and competitiveness in difficult times*. The World Bank

Rawlins, M. 1999, "In pursuit of quality: the National Institute for Clinical Excellence", *Lancet*, vol. 353, no. 9158, pp. 1079-1082.

Roland, M. 2004, "Linking physicians' pay to the quality of care--a major experiment in the United kingdom", *The New England Journal of Medicine*, vol. 351, no. 14, pp. 1448-1454.

Savedoff, W. 2004, *Tax based financing for health system: Options and experiences*, World Health Organization, Geneva.

Schell, E. 1989, "Lessons from the Canadian health care system", *Nursing economics*, vol. 7, no. 6, pp. 306-309.

Schieber, G., Baeza, C., Kress, D. & Maier, M. 2006, "Financing health systems in the 21st century" in *Disease Control Priorities in Developing Countries*, eds. T.D. Dean T. Jamison, G.J. Breman, R.A. Measham, et al, 2nd edn, Oxford University Press, New York, pp. 225-240.

Schreyögg, J., Stargardt, T., Velasco-Garrido, M. & Busse, R. 2005, "Defining the "Health Benefit Basket" in nine European countries. Evidence from the European Union Health BASKET Project", *The European Journal Of Health Economics: HEPAC: Health Economics In Prevention And Care,* vol. Suppl, pp. 2-10.

Shin, D.W., Jung, K., Kim, S., Bae, J., Kim, Y., Ryu, K.W., Lee, J.H., Noh, J., Sohn, T. & Yun, Y.H. 2009, "Impact of supplementary private health insurance on stomach cancer care in Korea: a cross-sectional study", *BMC Health Services Research,* vol. 9, pp. 133-133.

Smith, C.P. & Witter, N.S. 2004, *Risk Pooling in Health Care Financing: the Implications for Health System Performance*, World Bank, Washington.

Son, A.H.K. 1998, "The construction of the medical insurance system in the Republic of Korea, 1963–1989", *Scandinavian Journal of Social Welfare*, vol. 7, no. 1, pp. 17.

Sosa-Rubí, S.G., Galárraga, O. & Harris, J.E. 2009, "Heterogeneous impact of the "Seguro Popular" program on the utilization of obstetrical services in Mexico, 2001–2006: A multinomial probit model with a discrete endogenous variable", *Journal of health economics*, vol. 28, no. 1, pp. 20-34.

Steinbrook, R. 2006, "Private Health Care in Canada", *New England Journal of Medicine,* vol. 354, no. 16, pp. 1661-1664.

Telyukov, A. 2001, *Guide to prospective capitation with illustrations from Latin America*.

The European Observatory on Health Care Systems 1999, *Health Care Systems in Transition: United Kingdom*.

Wagstaff, A. 2007, "Health systems in East Asia: what can developing countries learn from Japan and the Asian Tigers?", *Health economics,* vol. 16, no. 5, pp. 441-456.

WHO 2006, , *Highlights on health in the United Kingdom 2004.* Available: http://www.euro.who.int/document/e88530.pdf [2009, March 11] .

WHO 2005a, *Social health insurance: Selected case studies from Asia and the Pacific*.

WHO 2005b, "Sustainable health financing, universal coverage and social health insurance", *WHO*, , no. WHA58.33, pp. 139-140.

Xu, K., Evans, D., Carrin, G. & Aguilar-Rivera, A.M. 2005, *Designing health financing systems to reduce catastrophic health expenditures: Technical briefs for Policy Makers*.

Yang, B.M. 1996, "The role of health insurance in the growth of the private health sector in Korea", *The International journal of health planning and management*, vol. 11, no. 3, pp. 231-252.

Yang, B.M., Bae, E.Y. & Kim, J. 2008, "Economic evaluation and pharmaceutical reimbursement reform in South Korea's National Health Insurance", *Health affairs (Project Hope)*, vol. 27, no. 1, pp. 179-187.

PART C: ARTICLE

Experience of achieving universal coverage: A review of health care financing in four Organization for Economic Cooperation Development (OECD) countries (Canada, the Republic of Korea, Mexico and the United Kingdom).

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Abstract

Background: The World Health Assembly Resolution in 2005 urges Member States to introduce and/or strengthen universal coverage policies to facilitate financial risk protection (FRP) to households in order to avoid catastrophic health expenditures and impoverishment from seeking care. The other goal of universal coverage is to ensure equitable access to healthcare based on relative need, irrespective of ability to make health payments, social status or geographical location. The two prepaid financing mechanisms that promote universal coverage are mandatory health insurance and general tax revenue.

Aim: To undertake a comparative analysis of selected OECD countries with universal coverage to derive lessons that could inform the development of universal coverage policy in low-to-middle income (LMICs) countries.

Methods: Empirical evidence on the selected OECD countries was sourced through an extensive review of published literature from print and electronic sources. Countries were selected from different continents to include health systems with a long history as universal systems. Most universal systems are in OECD countries. OECD countries were selected because of availability of high quality credible data. The data for the analysis is sourced from OECD Health Data 2008 dataset. Kutzin's conceptual framework is the analytical tool for the critical analysis of empirical evidence in terms of the equity, sustainability, efficiency and feasibility of each health system.

Results: Findings from the analysis show that publicly funded (primarily tax-funded) systems have lower out-of-pocket expenditures and offer greater financial risk protection. Systems with a single risk pool and a single payer tend to be administratively efficient. Allocating health resources based on a needs-based allocation formula is more equitable than historical budgeting. Capitation provider payment promotes greater efficiency than fee-for-service. A purchaser-provider split also improves efficiency.

Background

Health is not only a human right; but good population health is central to economic and human development [1]. Ultimately, development in society is partly assessed by the quality of its population health, especially as it relates to the extent to which poor households are financially protected from the consequences of ill health, and how equitably health resources are distributed [2]. While money is crucial to financing health systems, increased spending on health does not automatically translate into equitable, efficient and effective health care. This is only feasible when suitable prepaid financing mechanisms are extensively used in financing the health system alongside a delivery system that allows for the provision of health care services in an equitable and efficient manner [3].

Health financing mechanisms are being re-structured to offer greater financial risk protection (FRP) by increasing the use of prepaid financing mechanisms, primarily general tax revenue and mandatory health insurance. FRP and equity in access are the fundamental goals of universal coverage [4]. Within universal systems, every individual has access to health care based on relative need irrespective of ability to make health payments, social status or geographical location. Most countries are introducing or strengthening universal coverage policies in order to allow households access to care when needed while averting catastrophic expenditures and impoverishment from seeking health care. This follows the World Health Assembly Resolution in 2005 whereby Member States were urged pursue universal coverage policy [5].

However, there are new challenges facing health systems in meeting the goals of universal coverage, given rapid health care cost inflation, the epidemiological transition, aging populations, growing expectations of consumers, the growth of new medicines and medical technologies and escalating pharmaceutical spending [6-8]. This is against a background of unfavourable fiscal constraints in many countries, limiting resource mobilization at a domestic level and failures in the health care market, especially attributable to information asymmetry between providers and consumers in health systems where supply-side regulation is not stringent. It is for these reasons that public intervention in health financing is essential in terms of equitably and efficiently collecting revenue to finance a comprehensive benefit package that offers adequate financial protection; efficiently managing public funds; and maintaining technical and allocative efficiency in purchasing health services [9]. In most OECD countries, government is actively involved in supply-side regulation and financing of health care. Using different prepaid financing mechanisms either through mandatory or voluntary risk pooling, most OECD countries with the exception of Mexico, Turkey and the United States have achieved universality [7]. Nonetheless, Mexico is in transition to a universal system following the implementation of a universal coverage policy in 2004.

While no health system is identical with respect to organizational and management structures, there are similarities in aspects of revenue collection, pooling and purchasing of health care services. This paper draws evidence through a comparative analysis of four OECD countries that have achieved universal coverage (Canada, Korea and the United Kingdom), or are seeking to achieve universal coverage (Mexico, which envisages reaching this point by 2010) through a review of empirical

evidence from literature. The aim of the paper is to derive lessons from the selected OECD countries that may inform the development and implementation of universal coverage policy in LMICs.

Methods

The paper's main focus is on the health financing policy in the four selected countries to determine the extent to which equity, efficiency, sustainability and feasibility goals have been met with respect to the functions of revenue collection, pooling of funds and purchasing of health services. Revenue collection deals with the financial contributions that finance health care services, the structure of these financing contributions, and the organizations or agencies that collect the contributions [10]; pooling, entails the "accumulation of prepaid revenues on behalf of a population" [11]; and lastly, purchasing, is essentially the "transfer of pooled funds to providers on behalf of the population" [12].

A detailed overview of these health financing functions in the four health systems is provided in **Appendix 1**.

Population and sampling

Countries

The population of interest is countries that have achieved UC or are in transition to UC. The selection criteria singled OECD countries because most universal health care systems are in these countries. Additionally, universal systems in OECD countries have a long history, which was a significant motivating factor for their selection. In addition, the availability of high quality credible data for analysis from the OECD was taken into consideration in the selection.

Review countries are drawn from different continents: Asia (The Republic of Korea/South Korea), Europe (United Kingdom), South America (Mexico) and North America (Canada). The exclusion of countries from Africa was due to the absence of a universal system in the continent and lack of reliable data attributable to undeveloped information systems in these countries. Although Ghana passed legislation to introduce a national health insurance system in 2003, universal coverage has not yet been achieved.

Mexico was particularly chosen for this comparative analysis because it is was one of only three OECD countries that do not operate a universal system prior to the endorsement of the universal coverage policy in 2004. The other two countries are Turkey and the United States (OECD 2009). Although there was an attempt to use appropriate selection criteria, there are limitations especially with the selection of these four countries, which may be open to criticism. In light of this, it is important to point out that the study did not focus on drawing definitive conclusions on the various aspects of health financing but rather sought to identify some key lessons that could provide insights for other countries considering implementing universal coverage policy.

Analyses

This involved a combination of data on performance of health systems and extensive review of literature for empirical evidence.

Data sources

Data for the analysis is available from the OECD Health Data 2008 dataset.

Indicators

The main focus was on economic indicators of specifically health expenditure indicators such total health expenditure, public and private expenditure on health and health financing indicators such as general government expenditure, social security expenditure health, private insurance expenditure and out-of-pocket expenditure.

Literature review

Empirical evidence from online sources was gathered from peer-reviewed journals, and from grey literature such as manuscripts, policy documents, policy briefs and reports. Other sources were books and print journals. Google Scholar was the main search engine for online searches while Academic Search Premier, Medline, Science Direct and Pub Med were the main databases used. Useful websites from which additional information was sourced were the World Health Organization, Pan-American Health Organization and the European Observatory of Health Care Systems websites. The key words for the search were: health care system, universal coverage, social health insurance, health insurance, health financing, provider payment mechanism and country names (Canada, Mexico, Republic of Korea and the United Kingdom).

Analytical tool

Kutzin's conceptual framework [11] was the analytical tool for the critical analysis of empirical evidence based on the concept of equity, efficiency, sustainability and feasibility.

Ethics

Ethics approval was sought from the University of Cape Town Ethics Research Committee. *See Appendix 2 for Ethics Approval letter*.

Results and discussion

Revenue collection

Revenue is raised from four main sources in the four countries: general taxation; mandatory health insurance contributions; private health insurance; and, out-of-pocket payments. However, there are significant differences in the mix between these financing sources and in the regulation of private health insurance.

Public finance

Figure 1 summarizes the main financing sources in the four health systems. Public finance dominates financing in the health systems of Canada and the United Kingdom while private finance, primarily out-of-pocket payments dominates financing in the Mexican health system. For the Korean health system, the share of public and private finance via the mandatory insurance contributions and out-of-pocket payments, respectively, are almost of equal proportions. Private health insurance plays a minor financing role in all the health systems with the exception of Canada where spending on private insurance is almost four times the spending in the other three countries.

General tax revenue

On average, public expenditure on health in the OECD was 73% in 2006. Only the United Kingdom (87.3%) surpassed this average. Mexico (44%) was the least publicly funded health system followed by Korea (55.1%) and Canada (70.4%) (Table 1).

General tax revenue dominated public finance in Canada (69%) and the United Kingdom (83.4%), while social insurance contributions dominated public finance in

Korea (42.6%) and Mexico (26.6%) in 2006 (Figure 1). General tax revenue was less than 20% of the total health expenditure in the latter two countries.

Since government's role in health financing is constrained by the size of the economy, fiscal policy and other government policies that determine priority areas for government spending [13], the relatively limited capacity for allocations of general tax revenue to the health sector in Korea and Mexico may be attributable to narrow tax bases and possibly because of lower marginal rates for income taxes compared to other OECD countries of similar income levels [14]. In Canada and the United Kingdom, nearly half of the general tax revenue is derived from the income tax system while Korea and Mexico obtain a larger percentage of general tax revenue from indirect taxes **[See Appendix 1].** Income taxes offer sustainable revenue bases if structured progressively to capture revenue across a wide range of incomes. Additionally, the favourable economic climate in Canada and the United Kingdom provides opportunities for employment which makes general tax revenue a sustainable financing mechanism.

Revenue bases can be broadened through tax reform by modifying tax rates, scaling back on excessive credits and exemptions on income tax returns and improving tax administration [15]. These measures improve tax efficiency by boosting revenue levels which offers prospects for expanding government's budget through creation of 'fiscal space', which is defined as the "availability of budgetary room that allows a government to provide resources for a desired purpose without prejudice to the sustainability of that government's financial position" [16]. Strengthening the tax administration is fundamental to the creation of sustainable fiscal space. In addition

to fiscal policy, which essentially determines the proportion of the economy subject to taxation and the share of GDP allocated to fund government expenditure [13], GDP growth is the other vital macroeconomic component in creating sustainable fiscal space since economic growth facilitates resource mobilization at the domestic level [9].

The evidence shows that countries with higher economic activity levels allocate more general tax revenue towards health financing. Based on the World Bank classification of economies, Canada, Korea and the United Kingdom are classified as high-income economies while Mexico is an upper middle-income economy [17]. As shown in Table 1 Canada and the United Kingdom have higher GDP per capita levels than Korea and Mexico and therefore allocate a greater share of their GDP towards health. On average, OECD countries spent 8.9% of their GDP on health in 2006 [18]. Canada is the only country that surpassed this average, allocating 10% of its GDP to the health sector, closely followed by the United Kingdom (8.4%). Korea (6.4%) and Mexico (6.6%) allocated the least shares of their GDP to finance health sectors (Figure 2).

Although the macroeconomic climate and government's fiscal policy are outside the control of the health sector, expanding the share of the economy subject to taxation offers prospects for boosting general tax revenue and using some of this revenue to finance government health budget. In aligning government's fiscal policy to meet health policy objectives, the Mexican government has restructured government's priority expenditure areas. Public spending has been increased by 1% of the 2003 GDP in seven years to ensure sustained revenue in the transition to universality [19].

With respect to efficiency in tax collection, the United Kingdom's tax system is the most efficient of the four studied given its simple tax structure comprising only twenty-two taxes [20]. In contrast, the Canadian tax system levies over seventy-three federal, provincial and territorial taxes [21]. This makes the tax system very complex and likely administratively inefficient. The multiple levels of tax administration at federal and provincial level, which is also a feature in the Mexican tax system [20, 21] reduces administrative efficiency in revenue collection given the added costs of collection at the multiple collection points.

Besides tax efficiency, it is also essential to ensure that the financing (tax) burden is distributed equitably among tax payers. Income taxes are structured progressively in all the countries considered. In the United Kingdom, the Kakwani index for income taxes has a high positive value (+0.2843) implying that income taxes are highly progressive. Since a large share of the general tax revenue is drawn from direct taxes low-income groups contribute less towards taxation than high-income groups [22]. Similarly, in Korea taxation is progressive with rich households bearing a greater tax burden. This is in spite of Korea deriving a greater share of general tax revenue from indirect taxes **[See Appendix 1**. The Kakwani indices are positive for direct (+0.2683) and indirect taxes (+0.0379) (23), so indirect taxes are mildly progressive in Korea, which may be attributable to the extensive VAT exemptions.

Although there are no similar data for the other two countries, there are horizontal inequities (the unequal treatment of equals) in the Mexican tax system through levying different corporate income tax rates for some economic sectors. Given the

large and expanding informal sector, businesses with similar taxable income as those in the formal sector, pay different taxes or evade the taxes entirely [14,24].

Broadly, three issues are fundamental to the generation of general tax revenue: equitable distribution of the tax burden, efficiency in tax collection and economic growth. The latter two are beyond the jurisdiction of health policy but could be a key reason there is low government spending in some health systems.

Mandatory health insurance

There is a strong link between the source of public finance and the level of out-of-pocket expenditure. In health systems where general tax revenue accounts for the largest share of public finance (Canada and the United Kingdom), out-of-pocket spending is low. Conversely, where social health insurance dominates public finance, out-of-pocket spending as a share of the total expenditure on health is high such as in Korea and Mexico.

In Figure 3, a comparison is drawn between general tax revenue and social insurance contributions as a percentage of the total expenditure on health. The farther a country is from the diagonal line, the less the health system is publicly financed.

Figure 4 shows the comparison between out-of-pocket expenditure and public expenditure on health. The closer a country is to the diagonal line, the less private insurance dominates financing and the father it is from the diagonal line, such as Canada, the higher the proportion of private insurance as a percentage of the total expenditure on health.

Korea and Mexico are the least publicly financed and equally FRP is low given the high out-of-pocket expenditure. Thus, where SHI dominates public finance, households tend to lack adequate FRP. There are two main factors that are likely to contribute to the lack of adequate FRP through SHI: limited revenue generating ability because of low contribution rates; and a limited revenue base.

In the United Kingdom and Canada mandatory contributions are collected centrally alongside income taxes. This is administratively efficient as there are minimal costs involved in collection. In Korea, countrywide National Health Insurance Corporation (NHIC) branches [25] collect the SHI contributions. This may also be efficient as the single payer is likely to maintain low collection costs unlike Mexico where two separate collecting authorities, the Mexican Institute for Social Security and the Housing Fund [PWC 2009] collect contributions for each scheme that makes up the SSS network.

Compared to other OECD countries that run SHI systems, for example Germany where the contribution rate is about 14% of earnings [15], Korea's SHI contribution rate of 5.08% of salary (NHIC 2009) and Mexico's (1.65%) are very low **[See Appendix 1].** In Korea, low contribution rates were favoured at the onset of the NHI system since they offered minimal economic distortions and elicited greater willingness to pay especially among the informal sector ensuring rapid expansion of coverage. If individuals are making substantial health care payments on an out-of-pocket basis, this can be converted to a 'premium' and paid in the form of a prepaid mechanism such as payroll, income or indirect tax [15]. Koreans are already paying the payroll tax, albeit at a very low contribution rate; increasing the rate offers the

prospect of boosting revenue while expanding the benefit package to cover more services while reducing co-payments. However, the feasibility of contribution increases is unlikely given the horizontal inequity in the NHI due to inaccuracies in assessing the incomes for the self-employed [26] to determine their mandatory contribution. This group contributes less in absolute terms, placing an unfair financing burden on formal sector workers, which may hinder willingness to contribute more. Additionally, the contribution rate is proportional rather than progressive to salary for formal sector workers adding to the regressivity of this financing mechanism. The Kakwani index is has a negative (-0.1634) value [23]. Low-income earners, therefore, bear a higher financing burden than high-income earners. Nonetheless, the full and partial subsidization of SHI contributions for the poor and low-income earners, respectively, upholds equity in financing by removing the financial barrier for vulnerable groups.

Another reason why contribution increases may not be feasible is the lack of confidence and mistrust in the insurer. There is a general dissatisfaction with the insurer among beneficiaries with concerns that potential revenue boosts are unlikely to be used to expand the benefit package but instead reward provider inefficiency through unwarranted remuneration as a consequence of over- provision of, often, unnecessary health care [26]. Lastly, because of path dependency, the custom of low contribution rates is firmly entrenched among contributors [27].

Mexico faces similar challenges as Korea but unlike Korea the mandatory contributions are structured progressively such that the financing burden is equitably spread among contributors [28] **(See Appendix1**). Low income earners bear a less

financing burden than high income earners. Therefore, there may be greater willingness to pay given that there are greater social benefits the contribution provides besides health insurance such as retirement benefits, life insurance among other benefits. Nevertheless, low income levels, high poverty levels, wide income and social inequalities [29] could hamper efforts to increase contribution rates. Given that the primary revenue base for the mandatory contributions is formal sector employees, high contribution rates against a background of low income levels could be a deterrent for formal employment. As more individuals pull out of formal sector employment the revenue base is considerably reduced and the ability to generate more funds lessened. While the large informal sector also offers potential revenue base that could boost revenue levels, the enrolment of this group to 'mandatory' schemes is often voluntary and weakly enforced. Wagstaff [15] argues that a voluntary and/or weakly enforced 'mandatory' contribution arrangement for the informal sector is a deterrent for formal employment. Workers opt out of formal employment in favour of working in the informal sector with the option of insurance coverage at a lower cost though with a less comprehensive benefit package.

Enrolling the informal sector had proven been challenging in Mexico through two other schemes **(See Appendix 1)** prior to the launch of *Seguro Popular* in 2004**.** Voluntary enrolment is at the core of *Seguro Popular's* incentive structure by way of financial incentives that trigger financial flows from the supply- to the demand-side such that money follows the patient. Under the new scheme, state health facilities have a strong inducement to improve service delivery in order to encourage enrolment and re-enrolment as state health budgets are tied to the number of *Seguro Popular* enrolees. Additionally, the greatest incentive to enrol is given to households

in the two lowest income quintiles by fully subsidizing their contributions. This promotes equity in financing as the poor are encouraged to enrol by removing the financial barriers. Lastly, households that decide not to enrol by 2010 will continue to incur out-of-pocket payments at state health facilities since *Seguro Popular* offers beneficiaries access to a comprehensive benefit package covering essential personal care services and catastrophic interventions without co-payments [19,28]. This is a great inducement for households to enrol in the scheme, especially the non-poor informal sector workers. To show that the population is responding to the incentive structure, by the first quarter of 2006, 11·5 million individuals had enrolled in *Seguro Popular* representing 16–18% of the total population that did not have social protection or private health insurance. Of these enrolees, 19% were households in the poorest income quintile while 21% were households in the second lowest income quintile [30].

Private finance

Out-of-pocket payments

In countries where the tax system is administratively efficient, the revenue generating capacity of general tax revenue is high with equally high spending on health. Given the low government spending in Korea and Mexico, the two health systems derive about half of health financing revenue from private sources with private expenditure accounting for 55.8% of the total expenditure on health in Mexico and 44.9% in Korea. Private expenditure accounted for just 29.6% in Canada and 12.7% in the United Kingdom of the total expenditure on health in 2006 (Table 1). Most private spending is from out-of-pocket payments and to a lesser extent private insurance in all the health systems except Canada. Korea, Mexico and the

United Kingdom had almost equal shares of the private insurance spending as a share of total expenditure on at 3.3% (Korea and United Kingdom) and 3.4% Mexico.

The low out-of-pocket spending in Canada as a share of the total private expenditure on health can be attributed to prepayment of health care through schemes such as employer-based private health insurance, voluntary PHI and tax financed provincial drug plans for social assistance recipients and the elderly [31]. These prepaid financing mechanisms extend the scope of prepaid care beyond health care goods and services that are publicly financed. The OOP spending in the United Kingdom is also relatively low. Most of this spending is from payments for the limited number of services that are not publicly financed such as the prescription fee, dental and vision care. Vulnerable population groups **[See Appendix 1]** are exempt from out-of-pocket payments. This promotes equity in financing by removing the financial barrier for those with a lesser ability to pay.

While Canada and the United Kingdom have developed safety nets to offer FRP through prepaid financing mechanism and exemptions respectively, Korea and Mexico are yet to achieve meaningful gains in offering adequate financial protection Mexico received a low ranking in the *WHO Report 2000* as a country with inequitable financing due to the dominance of out-of-pocket payments in financing the health system. *Seguro Popular* was launched in response to the findings that catastrophic health expenditures and impoverishment from seeking care were widespread, affecting poor households the most [32]. However, in spite of government's effort to lessen the financing burden on previously uninsured

Mexicans through *Seguro Popular*, the role of the large, unregulated and expanding private sector, which functions alongside the public delivery system, cannot be underestimated. Access to privately delivered care is often on an out-of-pocket basis since providers are paid on a fee-for-service basis. Few households possess private insurance to enable financial protection for privately delivered care. The growth of the private sector is strengthened by the inability of the public delivery system (both the social security system and state's health facilities) to deliver adequate and needed care in a timely fashion [33]. Lengthy waiting times at all levels is a major allocative inefficiency facing public providers. If service delivery is not streamlined under *Seguro Popular*, beneficiaries may opt to receive care in the alternative private sector where they continue incurring greater out-of-pocket expenditures.

In Korea most of the out-of-pocket spending is from co-payments on insured services and direct payments on uninsured services. Universal coverage was achieved at a low cost in Korea by means of low contribution rates, a limited benefit package and high co-payments on insured services. In spite of gradual expansion of the benefit package, the proportion of OOPs has only declined marginally possibly because of increased utilization of uninsured services. Regardless of the high levels of co-payments in Korea, OOP payments are mildly progressive given the positive (+0.0124) Kakwani index [23]. This is not surprising as those with a greater ability to pay may demand more uninsured services for which they pay directly [34]. Wagstaff [35] in fact argues that if there are limited public resources, a comprehensive benefit package which levies similar and quite high co-payments for all beneficiaries' increases the degree of regressivity, while a limited benefit package that permits out-of-pocket payments for uninsured services increases the degree of

progressivity. Though Medical Aid offers FRP for vulnerable groups, there are possible errors of exclusion. Medical Aid covers on average 3-4% of the population but an estimated 12% of the Korean population have household incomes falling below or on the poverty line [34]. It is likely that this group of low-income earners whose contributions are not fully subsidized may be spending a greater share of their income in financing health care on an out-of-pocket basis. The scope of eligibility to the 'non-contributory' Medical Aid should be expanded in Korea to include more vulnerable groups that are erroneously locked out through inaccurate household income assessments.

Private Health Insurance (PHI)

Private insurance plays a limited role in financing health care in all countries considered accounting for less than 5% of the total health expenditure except in Canada where the spending accounts for 12% of the total health expenditure (Figure 1). There are some similarities but also important differences in the role of voluntary health insurance in the four health systems.

In terms of similarities, PHI is progressive in all four countries since only the wealthy can afford to be PHI subscribers; they pay twice for health care services as opting out of public insurance is outlawed. Secondly, tax rebates are not offered for PHI in all the countries except for the employer-based health insurance in Canada. Subsidizing this cover makes it more affordable. However, Quebec province taxes this health benefit as part of income taxes [36].

In the United Kingdom PHI expands consumer choice by offering access to a wider choice of providers, treatment facilities and timing of treatment provided by private hospitals and consultants. The demand for PHI in the United Kingdom is highly price-inelastic. The small effect of price on demand is attributable to purchase of insurance by individuals of a higher SES and the fact that private insurance coverage is offered by some employers as a benefit that comes with formal employment. The services covered by PHI in the United Kingdom vary in scope and depth; the higher the premiums the more comprehensive the cover and vice versa. PHI funds flow to providers of alternative care such as home nursing services, for superior accommodation in private hospitals, cosmetic surgery etc. However, PHI does not extend benefits for resource-intensive services such as accident and emergency services [37].

PHI is of two types in Canada: employer-based and voluntarily purchased. The former performs a complementary role in that it "complements coverage of publicly insured service within principal or substitutive health insurance" [38] by facilitating the reimbursement of payments for health goods and services that are not publicly financed such as outpatient prescriptions and home based care among others [36]. Voluntarily purchased PHI performs a duplicate role by offering insurance coverage for services already insured under the public plan. Duplicate PHI is outlawed in most Canadian provinces [39].

Recent developments however have expanded the scope of duplicate insurance. Prior to the Supreme Court ruling in the *Chaolli v Quebec* case in 2005 that lifted the ban on duplicate PHI in Québec province [40,41], six other provinces had outlawed it

[39]. Quebecers now have the option of purchasing duplicate cover for some surgical procedures such as hip replacement [41] where waiting lists are long and it is possible to access similar services as those covered by the public insurer from private providers [40]. Other provinces that had outlawed duplicate insurance are revising their laws following the unprecedented ruling in anticipation of future lawsuits [41]. The creation of a two-tiered health system following the ruling is undeniable, with affluent Canadians possessing duplicate insurance and the rest of the population solely insured under Medicare. For the relentless advocates of privatization, a parallel private sector financed with duplicate PHI is argued to ease pressure on the public delivery system by reducing waiting times for elective care while expanding consumer choice. However, most Canadians are opposed to a two-tiered system, as it will erode the principle social solidarity by giving preferential access to health care to the affluent [42].

In Korea, PHI covers mainly co-payments for catastrophic ailments such as cancer. The insurer makes a payout to the patient to purchase needed health care from providers [43]. Private insurance may over-insure but it may also under-insure beneficiaries if the fixed benefit payout is less than the charges payable to the provider [44] necessitating payments on an OOP basis.

Mandatory risk pools and resource allocation mechanisms

Pooling of risks through mandatory prepayment mechanisms has facilitated universal coverage in all health systems considered with the exception of Mexico. There are two main mandatory risk pools common in all the four countries: the general tax revenue pool and the social health insurance pool. The general tax pools cover 100%

of the population in Canada and the United Kingdom and 3-4% of the population in Korea. The SHI pool covers 96% of the population in Korea while the multiple SHI pools cover 50% of the population in Mexico **[Appendix 1].**

Within these mandatory pools, the degree of pool fragmentation and integration of risk pools varies across countries. Geographically defined risk pools comprise regional health authorities (RHAs) in Canada, the primary care trusts (PCTs) in the United Kingdom and the countrywide NHIC branches in Korea. However, these are essentially decentralized components of an integrated pool in some cases. More substantive risk fragmentation exists in Mexico due to the many social insurance schemes that make up the social security network. In spite of fragmentation in these pools, the cross-subsidies are greater in mandatory pools as they are large society pools comprising individuals of varying income levels and health status.

Mandatory risk pools are not vulnerable to the inefficiencies and inequities associated with voluntary risk pooling such as cream skimming, adverse selection and high transaction costs, the latter occurring particularly in competitive health insurance markets. However, risk fragmentation can occur in two ways within mandatory pools: through unequal allocation of centrally collected revenue to individual risk pools; and unequal redistribution of pooled revenue to compensate for variations in the revenue base in favour of pools that have low revenue bases [45]. Population based funding or a needs-based allocation formula lessens geographical inequities by transferring financial resources from low to high need pools. Some Canadian provinces, the United Kingdom and Mexico use a population based formula in allocating resources. In the United Kingdom the weighted-capitation

formula is determined by population size and weighted for indicators of relative need for care such as mortality, morbidity, unemployment, elderly people living alone, ethnicity and social economic status [9]. In Mexico the allocation formula takes into account health needs and level of socio economic development in states breaking away from historical budgeting that based health budgets on the size of the payroll for health services in different areas [19,28]. There are geographical inequities in Canada due to varying fiscal capacity since some provinces by virtue of geographical location and low economic activity could have a higher percentage of high-risk individuals such as rural unemployed populations, the elderly and low-income earners. This limits revenue raising ability from respective provincial tax systems particularly if the revenue base is inadequate. Given that the bulk of health revenue is generated from the provinces' own revenue sources, there is need to equalize the revenue shortfall in less wealthy provinces through the supplementary funds from the federal government. The federal transfer to provincial governments, the Canada Health Transfer (CHT), flows on a per capita basis. The allocation therefore does not take into account differential health needs in the population results, a significant inequity in the resource allocation process. While population-based funding has long been proposed in allocating the CHT, the feasibility of this allocation method taking effect is unlikely given the opposition from wealthier provinces [36]. The other inequity in allocation is through the global budgets from provincial/territorial governments to RHAs [46]. Global budgets result in some RHAs receiving disproportionately more financial resources than others as they have better expertise to advocate for increases in their share of the budget creating across-region inequality in the same province. To address this inequity only three provincial governments of British Columbia, Alberta and Saskatchewan allocate financial

resources to RHAs based on a needs-based allocation formula while Ontario uses the approach in allocating financial resources for home care and community-based services [47].

Korea is somewhat different in that is has a unitary pool, the National Health Insurance Corporation (NHIC), with devolved purchasing authority to NHIC branches countrywide. The devolved units merely implement the roles of the single payer (NHIC) such as revenue collection, fund management and provider reimbursement [25]. However, prior to the integration reform in 2000, the Korean NHI was characterized by multiple risk pools defined by geographical area (rural/urban) and employment status (employed/self-employed/). The rural schemes were more vulnerable to financial shocks given the decreasing number of enrolees and a larger enrolment of high risk individuals (elderly and the chronically ill) [27]. To improve cross-subsidies, risk equalization under the fiscal stabilization fund was introduced at a time when the NHI faced financial crisis in 2001 as the multiple insurance schemes faced an accumulated deficit [48]. Integration of the multiple risk pools allowed greater cross-subsidies across individuals with a wide range of incomes and health status.

Voluntary risk pools

There are multiple risk pools and widespread fragmentation across all voluntary pools in the four health systems. The private insurance market is of two types in Canada and the United Kingdom, for-profit and not-for-profit. The cross-subsidies are greater for employer-based health insurance than individual plans since premiums for the former are community rated in both countries. Risk-rating of

premiums in the individual market in the United Kingdom limits cross-subsidies due to the small size of the pool. High risk groups (low income earners and the chronically ill) are often locked out of the pool. Moreover, insurers in the individual plan market have sanctioned premium increases without loss in subscriber numbers [37]. This attributable to subscription of voluntary cover by individuals of a higher social economic status that self-select to join this pool.

Conclusively, in the absence of risk equalization measures in the private insurance industry in all the countries studied, the extent of cross-subsidies from low-to high risk groups, young to the elderly and the rich to the poor is limited.

Purchasing

Defining the benefit package

The benefit package refers to the "services, activities, and goods covered by publicly funded, statutory/mandatory insurance schemes (social health insurance, SHI) or National Health Services" [49]. The comprehensiveness of a benefit package is determined by its level of explicitness or implicitness. An explicit benefit package consists of an element of itemization or a 'positive list' of health benefits that are covered while an implicit benefit package covers a broad range of health goods and services albeit with a few exclusions or a 'negative list', which can comprise cosmetic surgery, organ transplants etc [10]. Given these definitions Canada and the United Kingdom operate implicit benefit packages while the benefit packages in Korea and Mexico are explicit.

The broad coverage of health services in Canada and the United Kingdom guarantees legal residents and citizens access to a wide range of health services free at the point of use. The explicit exclusions are minimal in the United Kingdom **[See Appendix 1]** but the recent adoption of health related groups (HRGs) in reimbursement decisions for inpatient care is a gradual transition to explicitly structuring the benefit package [49]. In Canada, services provided in hospitals and in ambulatory physician clinics are publicly financed and free at the point of use [50] but the sustainability of the Canadian benefit package is waning as technological advancements shift provision beyond the confines of hospital settings and physician clinics [51]. As surgical procedures become less invasive than in the past often requiring shorter or no hospitalization, home-based care, a privately financed health service, has grown to accommodate this shift in provision. This trend referred to as 'passive

privatization' [52] has resulted in a decrease in public spending and a rise in private spending, the latter accounting for almost 30% of the total expenditure on health. This is one of the reasons Canada is ranked among the least publicly financed health systems in the OECD.

An explicit benefit package offers avenues for the inclusion of more health services and goods. For example Korea's benefit package has been expanded gradually to include more services **[See Appendix 1]** in a bid to contain the high OOP spending**.** However, the proportion of OOP payments has decreased marginally as a result of high co-payments on insured serviced and increased utilization of uninsured services charged at unregulated market prices. This is unlike Mexico where at present beneficiaries in both formal and informal sector schemes have access to a wide range of health benefits without co-payments. But this was not the case prior the launch of *Seguro Popular.* The 'open' population or the informal sector had access to an under-funded benefit package at government run-facilities, where user fees were levied at the point of use for partial or full access for some services creating financial barriers for poor households. In addition, impoverishment and catastrophic spending was greater in the uninsured than insured populations. *Seguro Popular* offers FRP through the comprehensive benefit package covering essential personal health services and catastrophic ailments without co-payments **[See Appendix 1].** Ailments covered under the catastrophic fund are revised annually based on transparent criterion that takes into account the burden of disease, cost-effectiveness, and resource availability. Additionally, the catastrophic fund is aggregated at federal level because the small risk pools at the state level are inadequate in allowing equitable risk sharing [53]. This improves allocative efficiency given the advancing

and complex epidemiological transition, with a double burden of disease from infectious diseases associated with poverty such as TB one hand and, costly to treat lifestyle –induced non-communicable ailments such as diabetes on the other. In addition, the explicitly defined benefit package empowers enrollees to make demands from service providers as well as serving as a blueprint for accreditation to providers. This creates incentives for providers to deliver only cost-effective interventions mandated by the scheme [54, 55]. Provider accreditation intends to improve efficiency in the public delivery system and at the same time lessen the economic incentives under the fee-for-service provider payment system in the parallel delivery system, the private sector, which is for the most part privately financed through out-of-pocket payments.

Economic evaluation and health technology assessment

One of the shortcomings of an implicit benefit package is the uncertainty beneficiaries face over entitlements [56]. This often leads to 'postcode prescribing' or the addition of new treatments or technologies during the commissioning process and can vary across geographical areas. Implicit additions were widespread in the United Kingdom whereby some health authorities or trusts by virtue of financial advantage could commission some treatments, drugs or technology that were not within reach of less affluent health authorities [57]. It is without doubt that economic evaluation of diagnostic procedures and pharmaceuticals, and health technology assessment (HTAs) were introduced in the NHS to provide guidelines on the health care services and goods that would be reimbursable by the public payer and minimize geographical inequities in access to health services and allocation of financial resources. The National Institute for Clinical Excellence (NICE) provides

the guidelines on cost-effective interventions, pharmaceuticals, technologies etc and has hitherto created a positive list of new and existing technologies, diagnostic procedures and pharmaceuticals [56] that are reimbursable by the NHS.

Canada also applies economic evaluations and HTA but less rigorously than the United Kingdom. The national body Canadian Agency for Drugs and Technologies in Health (CADTH) is involved in HTA but financial constraints at the national level has led to an upsurge of local HTA agencies within regional health authorities, hospitals and provinces to gather cost effectiveness evidence that is "tailor made" to local needs [58]. While this upholds technical efficiency at the provincial/regional level there are significant drawbacks in the HTA process in Canada. One is the lack of co-ordination between the numerous national and local (provincial, territorial or regional) HTA agencies. This is unlike the United Kingdom where HTA appraisals and economic evaluations performed by NICE are disseminated throughout the entire NHS for implementation. Secondly, the absence of a homogenous decision maker to serve all the thirteen provinces reduces sectoral efficiency because of variations in HTA appraisals across different provinces/regions. Thirdly, the HTA process in Canada wastes resources due to the widespread duplication of the multiple HTA agencies. Lastly, there are possibilities of inequities in access to technology and HTA reports in Canada [59] but the extent of this inequity is as yet unknown.

Thus far, evidence is lacking on the extent to which HTA has informed technology acquisition Mexico and Korea but the analysis of the OECD data suggests that the acquirement of medical technology is weakly regulated in Korea. In Mexico, however, technological appraisals by the National Centre for Excellence in Health

Technology (*Centro Nacional de Excelencia Tecnológica en Salud*) launched as part of the far reaching social protection health reforms [60] is yet to be determined. In Korea the number of MRI units and CT scanners surpassed the OECD average, which was 10.2 units per million population for MRI units and 12 per million population for CT scanners in 2006 [18]. The number of CT scanners and MRI per million population increased by approximately 48% and 33%, respectively, between 1995 and 2005 as shown in Figure 5. By 2006 the capacity of CT scanners was 33.7 units per million population and 13.6 MRI units per million population. The number of CT scanners increased tremendously after 1996, when CT scanning was included in the benefit package [61].

Provider payment mechanisms

The performance of a given health system depends on the extent to which a purchaser uses its financial power to influence provider behaviour in pursuit of efficiency and provision of quality health care. A prudent purchaser links resource allocation decisions based on provider performance using various mechanisms that may include: financial incentives; primary care gate keepers; managing choice; contracting with selected providers and maintaining provider profiles among others [11]. The purchaser therefore creates balance by aligning incentives such that the provider bears some financial risks [62].

Financial incentives for providers

GPs in the United Kingdom are reimbursed on a capitation basis with a mix of allowances [63]. This payment method involves very low administration costs but one of its shortcomings is under servicing of patients. To mitigate this disadvantage, performance-linked service contracts were introduced in 2004 to reward GPs

financially for meeting set targets based on indicators of quality care while earning bonus points for prompt delivery of care. The financial inducement for GPs to reduce mortality and morbidity from non-communicable diseases that constitute the highest burden of disease [64] is intended to improve health outcomes in the population in the long-term. Nevertheless, inefficiencies could arise with illnesses excluded from the incentive structure not receiving as much attention from GPs as the 'bonus-linked' interventions.

Unlike the United Kingdom, GPs in Canada and Korea are reimbursed on a fee-for-service basis. This payment method creates perverse incentives to over-service, since providers bear minimal financial risks that are often borne by a third party (insurer) or patient. In Korea, provider fees are highly regulated by government [65] while Canada applies price and status disincentives to limit the profitability of private practice [39]. These disincentives deter physicians from opting out of the public plan to practice privately, since patients visiting these providers meet all health care costs on an out-of-pocket basis and to a lesser extent duplicate health insurance if permissible. These principles enhance equity and ensure patients have access to medically insured services without extra charges.

The perverse economic incentives in the FFS payment method can be contained if the purchaser has monopsonistic purchasing power to influence the provider. However, in spite of strong monopsony purchasing power, the NHIC in Korea cannot exploit this leverage because of the bargaining power possessed by physicians. Previous attempts to amend the reimbursement method were unsuccessful due to coordinated strikes by physicians in defiance of the reforms,

which paralysed the entire health system [65,67]. Similarly in Canada, GPs have greater bargaining power than the monopsonistic purchaser, the RHAs. In spite of the disincentive structure to discourage over servicing, GPs have continually lobbied for fee increases making the profession immensely lucrative. This is because RHAs have no power over physician budgets and service contracts which are handled by respective provincial/territorial medical boards [68].

While the financial incentives under capitation for GPs have contained cost inflation at primary care level, specialists in the United Kingdom have flexible service contracts that permit dual employment. In the private sector they are reimbursed on a fee-for-service basis while the NHS offers them full or part-time salary contracts [63]. The inefficiency stemming from this arrangement has been the growth of waiting times and lists for elective care in NHS hospitals. Rationing decisions are possibly one of the contributing factors to the long waiting lists as a result of imbalances in supply and demand in a health system where service delivery is free. More importantly though, is the political economy prevailing in such a system that cannot be overlooked. The private sector is dependent on the public system for its crucial resource; the human resources. Given the economic incentives under the FFS reimbursement method, specialists have strong incentives to dedicate their valuable skill in the financially rewarding sector while waiting times and lists grow in the public sector. Ultimately, confidence in the public delivery system is eroded increasing the perception of inefficiency of the public sector [52]. To improve allocative efficiency in the NHS, waiting lists management for elective care has been taken away from specialists while service contracts for specialists have been restructured to reward full-time employment and productivity [69].

While long waiting lists for elective care and undersupply of specialists are a challenge in the Canadian and the United Kingdom health systems, Korea has an abundance of specialists and no waiting lists for elective care. The lack of supply-side regulation has resulted in high numbers of specialists, who account for 80% of all practicing medical doctors. One in every four specialists has two medical specialities [70]. Moreover, most office-based physicians are board certified specialists and also own inpatient facilities where they practice [27]. Given the similar fee schedule for both individual and institutional providers, providers have high economic incentives to over-service in such a system.

Institutional providers such as in the NHS have also received financial incentives in order to improve allocative efficiency through payment by result (PbR) introduced in NHS hospitals in 2005 [71]. Under this incentive model, hospitals are rewarded for good performance by increasing elective output as hospital budgets are proportional to the number of elective activities undertaken [72]. Other initiatives to improve allocative efficiency and increase elective output have been through public-private partnerships through the Independent Sector Treatment Centres (ISTC) launched in 2003. The centres are operated by for-profit companies that provide care for NHS patients for some surgical procedures [73].

Gatekeeper role

A strong primary care system is well suited to make use of preventative care, screen and detect illness and enhance a co-ordinated approach to providers at other levels of care [74]. However, most SHI funded systems as seen from the example of Korea

and Mexico have weak referral systems. For instance in Korea there is no role differentiation between primary and secondary care providers, which leads to competition rather than co-ordination in service delivery [27] given that ambulatory clinics offer an expanded range of services similar to services provided at outpatient clinics in hospitals [35]. The consequence has been escalating health cost inflation and poor service delivery with an overall decrease in technical efficiency.

Canada and the United Kingdom have primary care gatekeepers albeit with differences and similarities in how each country runs its PHC system. The major difference between the two systems is that GPs in Canada operate outside the RHA system whereas in the United Kingdom, PCTs have a dual role as providers of primary care and purchasers of secondary and tertiary care. It can thus be concluded that Canada's referral system is not as strong because the main purchaser, the regions have no control over primary care providers.

Citizens and legal residents have a choice of a primary care provider determined by geographical area in both countries. Primary care providers are independent contractors [36,63] in both settings. In the UK patients register with a GP practice as opposed to Canada where there is no rostering of the population. Patients self-select a primary care practitioner with most GPs practising in solo GP practices [36]. There are few GP practices in Canada. Groups as opposed to solo practices have lower running costs due to stronger purchasing power, enhanced economies of scale due to sharing of facilities and better co-ordination of care for patients with other providers for home care, long-term care among others [75]. In addition, group practices reduce geographical inequities in access since GPs have strong incentives to set up practices

in rural and underserved areas in the United Kingdom because of the needs based allocation formula in allocating financial resources [69]. This way GPs have less incentives to practice in urban areas since the allocation of resources to GPs is determined by indicators of relative need for care such as socio-economic status among others. Therefore, GPs practising in deprived areas receive more funds from central coffers.

A strong referral system promotes technical efficiency especially if primary care providers have monopsony purchasing power. This is because the single purchaser is more responsive to populations' healthcare needs given the few autonomous bodies to consult with in the decision making process, which also improves cross-sectional planning in the health system. In such a system, there is more emphasis on preventative care such as screening and immunizations and health outcomes are better.

Conclusion

Although there are limitations in considering only four countries, key take home messages for countries considering UC can be identified from the cross-country analysis.

With respect to the main prepayment financing mechanisms that guarantee universal coverage notably, general tax revenue and mandatory insurance contributions, the former tends to be more progressive. In addition, general tax revenue is captured across a wide range of revenue sources, accounting for its financial sustainability coupled with an efficient tax system that ensures compliance in tax administration.

The revenue generating ability from the tax system is substantial in high-income countries because of; formalization of the economy by widening the tax base through contraction of the informal sector, and efficient tax systems that guarantee tax compliance. Unlike high-income countries, LMICs face challenges in mobilizing adequate revenue from taxation because of low income levels, large informal sectors and limited economic activity. These factors have to be taken into account in considering a universal system funded for the most part through general tax revenue. In such instances mandatory contributions offer better prospects of raising additional revenue to finance the health budget with government funds subsidizing contributions for those with lesser ability to pay. However, given that the immediate revenue base for mandatory contributions is, often, formal sector workers, revenue raising ability may be constrained in LMICs because of large informal sectors which considerably reduce the revenue base. Additionally, there are considerable challenges in collecting informal sector contributions because of weakly enforced contribution arrangements or voluntary contribution arrangements creating avenues for evasion. Furthermore, the poor are less likely to enrol in 'mandatory' schemes because of financial barriers. Therefore, financial incentives by way of full or partial subsidization of contributions for those with a lesser ability to pay and low-income workers and access to comprehensive benefit package with minimal or no co-payments are great inducements in enrolling the informal sector.

In pooling risks, the goals of universal coverage (FRP and equity in access) can be maximized through prepayment financing mechanisms that allow for greater cross-subsidies; these being primarily general tax revenue and mandatory contributions because of the large size of the pools. Where mandatory contributions are the

preferred risk pooling mechanism, multiple fund pools covering different population groups, may be preferred as population coverage is expanded incrementally. This may result in gaps in coverage, financial unsustainability of the multiple payer system and challenges in integrating the multiple payers when 100% population coverage has been attained. Though risk equalization may take of revenue shortfalls in financially unstable and high need risk pools, integration is the only guarantee to financially viability in a multiple payer system as the larger the risk pool the greater the cross-subsidies and vice versa. While risk fragmentation is less likely when risk pooling is through general taxation, revenue shortfalls in a tax financed system can be equalized through redistributive policies that move funds from low to high need pools. In such a system, population based funding integrates geographically-defined pools by taking into account relative need for care determined by indicators of relative need.

In purchasing health services, it is crucial that financial risks are shared between providers and third parties while protecting patients from catastrophic spending and impoverishment from making health care payments. A comprehensive benefit package that involves minimal or no co-payment offers adequate FRP by minimizing excessive out-of-pocket payments. In resource-constrained settings, an explicit benefit package may be preferred as the itemized positive list often comprises interventions and treatments that have been found cost-effective. However, with explicit benefit packages cost-sharing arrangements by way of user fees and co-payments on insured services for partial or full access to health care services may create financial barriers for the poor. For this reason, an implicit benefit package that covers a wide of health services with explicit exclusions of medically unnecessary

health care services is ideal if the goals of universal coverage are to be attained. Besides the benefit package it is worthwhile to take into account the information asymmetry between providers and consumers in the health care market. Providers by virtue of their superior knowledge base can induce consumption, of often, unnecessary care by patients. This is more widespread especially if the provider payment method offers high economic incentives to over-service. Fee-for-service is not desirable because of the perverse incentives to over provide. Reimbursement methods such as the diagnostic-related groups (DRG) that shift the financial risks from patients to providers are therefore preferred as they diminish the tendency to maximize provider utility. Provider behaviour can also be altered through active purchasing irrespective of whether an institutional separation exists between purchaser and provider through active purchashing. Purchasers in single payer systems often have greater monopsony purchasing power and can influence provider behaviour unlike multiple purchasers in a multi-payer system. In such systems, supply-side regulation is essential to ensure efficiency and equity in the delivery of health services.

Universal coverage is modelled on the principle of social solidarity, which determines the willingness to introduce and maintain cross-subsidies. Hence, societal beliefs and values cannot be overlooked when considering universal coverage. Most universal systems were devised during periods in history where societies were defined by high levels of social cohesiveness. Given the widening social distance and the erosion of social compassion in society today, particularly in LMICs whereby social and income inequalities are extensive, community initiatives such as community-based health insurance in LMICs can re-establish social solidarity. The

schemes create cohesiveness while creating a sense of 'belonging' since these schemes are characterised by membership in a given geographical area and of similar religious or occupational (e.g substinence farming) affiliations.

Finally, irrespective of the prepaid funding mechanism (general tax revenue or social health insurance) chosen in the transition to universal coverage, the organizational structure of the health system determines the extent to which equity and efficiency goals are achieved in revenue collection, pooling and purchasing decisions.

{Words: 9085}

List of abbreviations

OECD	Organization for Economic Cooperation and Development
FRP	Financial risk protection
SHI	Social Health Insurance
OOP	Out-of-pocket
PHI	Private Health Insurance
NHI	National Health Insurance
SSS	Social Security System
NHS	National Health Service
PCT	Primary Care Trust
RHA	Regional Health Authority
NHIC	National Health Insurance Corporation
CHA	Canada Health Act
CHT	Canada Health Transfer
NICE	National Institute for Clinical Excellence
ISTC	Independent Sector Treatment Centres
HTA	Health Technology Assessment
CT	Computed Tomography
MRI	Magnetic Resonance Imaging
GP	General Practitioner
MCO	Managed Care Organization
IMSS	the Mexican Institute for Social Security

Competing interests

None of the authors listed have any competing interests**.**

Author's contribution

The author was involved in the conception and design of the work within the paper.

Author's information

CGK is a post-graduate student at the University of Cape Town. The article is part of the requirements for the partial attainment of the MPH degree.

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Reference 3

1. UNDP. **Human Development Report 1996: Growth as means to human development**. *Human Development Report 1996.*

2. Marmot M. Achieving health equity: from root causes to fair outcomes. *The Lancet* 2007 370 (9593):1153-1163.

3. Hsiao WC. **Why is a systemic view of health financing necessary?** *Health Aff (Millwood)* 2007, 26 (Suppl 4):950-961.

4. Carrin G, Mathauer I, Xu K, Evans BD. **Universal coverage of health services: tailoring its implementation**. *Bull. World Health Organ*, 2008; 86 (11):857.

5. WHO. **Sustainable health financing, universal coverage and social health insurance** (WHA 58.33). 2005; Available at: http://apps.who.int/gb/ebwha/pdf_files/WHA58/WHA58_33-en.pdf.

6. Schieber G, Baeza C, Kress D, Maier M. **Financing health systems in the 21st century**. In: Dean T. Jamison TD, Breman GJ, Measham RA, Alleyne G, Claeson M, Evans BD, et al, editors. *Disease Control Priorities in Developing Countries. 2nd ed.* New York: Oxford University Press; 2006. p. 225-240.

7. Hurst J. **Challenges for health systems in member countries of the Organisation for Economic Co-operation and Development**. *Bull.World Health Organ* 2000;78 (6):751-760.

8. Waters H. **Health Financing for poor people: resource mobilization and risk sharing**. *Bull.World Health Organ*. 2005 03; 83(3):236-236.

9. Gottret P, Schieber G. *Health Financing Revisited*: A Practitioner's Guide. 2006. World Bank. Washington.

10. McIntyre D. Health Financing**. Learning from experience: Health care financing in low- and middle-income countries.** 1st ed. Geneva: Global forum for health research; 2007.

11. Kutzin J. **A descriptive framework for country-level analysis of health care financing arrangements.** *Health Policy* 2001 06;56(3):171-204.

12. Kutzin J. **Health financing policy: a guide for decision-makers**. *Health Financing Policy Paper* 2008:1-23.

13. Hay R. **The fiscal space of publicly funded health care**. *Oxford Policy Institute Policy Brief* 2003; 4:1-8.

14. Dalsgaard T. **The tax system in Mexico: A need for strengthening the revenue-raising capacity**. *OECD Econ Department Working Papers* 2000; 233:1-79.

15. Wagstaff A. **Social health insurance reexamined**. *Health Econ* 2009 Apr 27.

16. Heller PS. **The prospects of creating 'fiscal space' for the health sector**. *Health Policy Plan*. 2006: 21(2):75-79.

17. The World Bank Group. **Beyond Economic Growth Student Book**. 2004; Available at: http://www.worldbank.org/depweb/english/beyond/global/glossary.html#12.

18. OECD. OECD Health Data 2008. **How does Canada compare**. 2009; Available at: http://www.oecd.org/dataoecd/46/33/38979719.pdf.

19. Frenk J, Gómez-Dantés O, Knaul FM. **The democratization of health in Mexico: financial innovations for universal coverage**. *Bull.World Health Organ* 2009; 87(7):542-548.

20. PWC. **Paying Taxes 2009: The global picture**. *PriceWaterHouseCoopers* 2009.

21. PWC. **Total Tax Contribution 2008: Canada's tax regime: complexity and competitiveness in difficult times**. **PriceWaterHouseCoopers** 2009 (May):1-44.

22. van Doorslaer E, Wagstaff A, van der Burg H, Christiansen T, Citoni G, Di Biase R, et al. **The redistributive effect of health care finance in twelve OECD countries**. *J.Health Econ*, 1999 ;18(3):291-313.

23. O'Donnell O, van Doorslaer E, Rannan-Eliya R, Somanathan A, Adhikari SR, Akkazieva B, et al. **Who pays for health care in Asia?** *J.Health Econ*, 2008; 27(2):460-475.

24. Martinez-Vazquez J. Mexico: **an evaluation of the main features of the tax system. International Studies Program.** 2001(Working paper 1-12).

25. WHO. Social health insurance: Selected case studies from Asia and the Pacific. *SEARO Regional Publication* 2005 (42):380-14.

26. Kwon S. **The Fiscal Crisis of National Health Insurance in the Republic of Korea: In Search of a New Paradigm**. *Social Policy & Administration* 2007; 41(2):162-178.

27. Kwon S. **Thirty years of national health insurance in South Korea: lessons for achieving universal health care coverage**. *Hea Pol and Plan* 2009; 24:63-71.

28. Knaul MF, Frenk J. **Health insurance in Mexico: achieving universal coverage through structural reform**. *Health Aff* 2005;24(6):1467.

29. Laurell CA. **Health reform in Mexico: the promotion of inequality**. *Inter Journ of Hea Serv* 2001; 31(2):291.

30. Gakidou E, Lozano R, González-Pier E, Abbott-Klafter J, Barofsky JT, Bryson-Cahn C, et al. **Assessing the effect of the 2001-06 Mexican health reform: an interim report card**. *The Lancet* 2006; 368(9550):1920.

31. Blomqvist A, Xu J. **Pharmacare in Canada: Issues and Options**. 2001.

32. Knaul MF, Arreola-Ornelas H, Mendez-Carniado O, Bryson-Cahn C, Barofsky J, Maguire R, et al. **Evidence is good for your health system: policy reform to remedy catastrophic and impoverishing health spending in Mexico**. *The Lancet* 2006;368(9549):1828.

33. Barraza-Lloréns M, Bertozzi S, Gonzalez-Pier E, Gutiérrez JP. **Addressing Inequity in Health and Health Care In Mexico**. *Health Aff* 2002;21(3):47.

34. Ruger JP, Kim H. **Out-of-pocket healthcare spending by the poor and chronically ill in the Republic of Korea.** *Am.J.Public Health* 2007; 97(5):804-811.

35. Wagstaff A. **Health systems in East Asia: what can developing countries learn from Japan and the Asian Tigers?** *Health Econ* 2007 05;16(5):441-456.

36. Marchildon PG. **The European Observatory on Health Systems and Policies. Health Systems in Transition, Canada**. *The Euro Obsv on Health Sys and Pol* 2005; 7(3):167-9.

37. Foubister T, Thomson S, Mossialos E, McGuire A. **Private medical insurance in the United Kingdom**. 2006.

38. OECD. **Proposal for a taxonomy of health insurance**. *OECD Health Project* 2004.

39. Flood CM, Archibald T. **The illegality of private health care in Canada**. *CMAJ*: 2001;164(6):825.

40. Angell M**. Privatizing health care is not the answer: lessons from the United State**s. *CMAJ* 2008 179(9):916-919.

41. Steinbrook R. **Private Health Care in Canada**. *N.Engl.J.Med*. 2006; 354(16):1661-1664.

42. Dhalla I. **Private health insurance: An international overview and considerations for Canada**. *Health Care Quarterly* 2007;10 (4):89-96.

43. Kang S, Kwon YD, You CH, Noh JH, Kim S. **The benefits of supplementary private health insurance for healthcare utilization and survival among stomach cancer patients**. *Tohoku J.Exp.Med*. 2009;217 (3):243-250.

44. Shin DW, Jung K, Kim S, Bae J, Kim Y, Ryu KW, et al. **Impact of supplementary private health insurance on stomach cancer care in Korea: a cross-sectional study**. *BMC Health Serv.Res***.** 2009; 9:1-18.

45. Smith CP, Witter NS**. Risk Pooling in Health Care Financing: the Implications for Health System Performance**. 2004; *Health Nutrition and Population (HNP*) Discussion Paper 1.

46. Li S. Health care financing policies of Canada, the United Kingdom and Taiwan. *Research and Library Services Division* 2006;2: 2-88.

47. Hurley J. **Regionalization and the allocation of health care resources to meet population health needs**. *Healthcare Papers* 2004; 5(1):34-39.

48. Yang BM, Bae EY, Kim J. **Economic evaluation and pharmaceutical reimbursement reform in South Korea's National Health Insurance**. *Health Aff (Millwood)* 2008; 27(1):179-187.

49. Schreyögg J, Stargardt T, Velasco-Garrido M, Busse R. **Defining the "Health Benefit Basket" in nine European countries. Evidence from the European Union Health BASKET Project**. **Eur J Health Econ** 2005 12;(Suppl 2-10).

50. Health Canada. **Canada Health Act Annual Report 2007-2008**. 2009; Available at: http://www.hc-sc.gc.ca/hcs-sss/pubs/cha-lcs/2008-cha-lcs-ar-ra/index-eng.php.

51. Deber R, Gamble B. "**What's in, what's out": stakeholders' views about the boundaries of Medicare**. *Healthc Q* 2004; 7(4):2.

52. Tuohy CH, Flood CM, Stabile M. **How Does Private Finance Affect Public Health Care Systems? Marshaling the Evidence from OECD Nations**. *Jour of Health Politics, Policy & Law* 2004; 29(3):359-396.

53. Frenk J. **Bridging the divide: global lessons from evidence-based health policy in Mexico**. *The Lancet* 2006; 368(9539):954.

54. Frenk J, Gonzalez-Pier E, Lezana AM, Knaul MF. **Comprehensive reform to improve health system performance in Mexico**. *The Lancet* 2006; 368(9546):1524.

55. Gonzalez-Pier E, Gutierrez-Delgado C, Stevens G, Barraza-Llorens M, Porras-Condey R, Carvalho N, et al. **Priority setting for health interventions in Mexico's System of Social Protection in Health.** *The Lancet* 2006; 368(9547):1608.

56. Mason A. *Does the English NHS have a 'Health Benefit Basket*'? *Eur J Health Econ* 2005 12; Suppl:18-23.

57. Parsons A, Johnstone A. **Postcode prescribing and the Human Rights Act 1998**. *J.R.Soc.Med*. 2001 94(4):159-160.

58. Hailey DM. **Health technology assessment in Canada: diversity and evolution.** *Med.J.Aust*. 2007; 187(5):286-288.

59. Menon D, Stafinski T. **Health technology assessment in Canada: 20 years strong? Value Health** 2009;12 Suppl 2:S14-9.

60. Frenk J, Gonzalez-Pier E, Gomez-Dantes O, Lezana AM, Knaul MF. **Comprehensive reform to improve health system performance in Mexico.** *The Lancet* 2006;368(9546):1524.

61. Yang BM. **The role of health insurance in the growth of the private health sector in Korea**. *Int.J.Health Plann.Manage*. 1996;11(3):231-252.

62. Hussey P, Anderson GF. **A comparison of single- and multi-payer health insurance systems and options for reform**. *Health Policy* 2003 12; 66 (3):215-228.

63. The European Observatory on Health Care Systems. **Health Care Systems in Transition: United Kingdom**. 1999:125-9.

64. Roland M. **Linking physicians' pay to the quality of care--a major experiment in the United Kingdom**. *N.Engl.J.Med*. 2004;351(14):1448-1454.

65. Kwon S. **Payment system reform for health care providers in Korea**. *Health Policy Plan*. 2003 03; 18(1):84-92.

66. Peabody JW, Lee SW, Bickel SR. **Health for all in the Republic of Korea: one country's experience with implementing universal health care. Health Policy** 1995 01; 31(1):29-42.

67. Kwon S. **Pharmaceutical reform and physician strikes in Korea: separation of drug prescribing and dispensing**. *Soc.Sci.Med* 2003;57(3):529.

68. Lewis S, Kouri D. **Regionalization: making sense of the Canadian experience**. **Healthcare Pap** 2004; 5(1):12-31.

69. Light DW. **Universal health care: lessons from the British experience**. *Am.J.Public Health* 2003 01; 93(1):25-30.

70. Jong-Chan Lee. **Health Care Reform in South Korea: Success or Failure**? *Am.J.Public Health* 2003;93(1):48-51.

71. Jameson S, Reed MR. **Payment by results and coding practice in the National Health Service. The importance for orthopaedic surgeons**. *JouBone Joint Surg* 2007;89(11):1427.

72. Marini G, Street A. **A transaction costs analysis of changing contractual relations in the English NHS**. *Health Policy* 2007; 83(1):17-26.

73. Pollock AM, Godden S**. Independent sector treatment centres: evidence so far.** *BMJ* 2008; 336(7641):421-424.

74. Wagstaff A. **Social Health Insurance vs Tax-financed Health Systems. Evidence from the OECD**. *Human Dev Public Service Team, Development Research Group* 2009;4821(Policy Research Paper):2-39.

75. Hutchison B, Abelson J, Lavis J. **Primary care in Canada: so much innovation, so little change.** *Health Aff (Millwoo*d) 2001;20(3):116-131.

76. Laurell CA. **Health system reform in Mexico: a critical review**. *Int Jrn Hea Serv* 2007; 37(3):515.

Additional File 1:

Tables

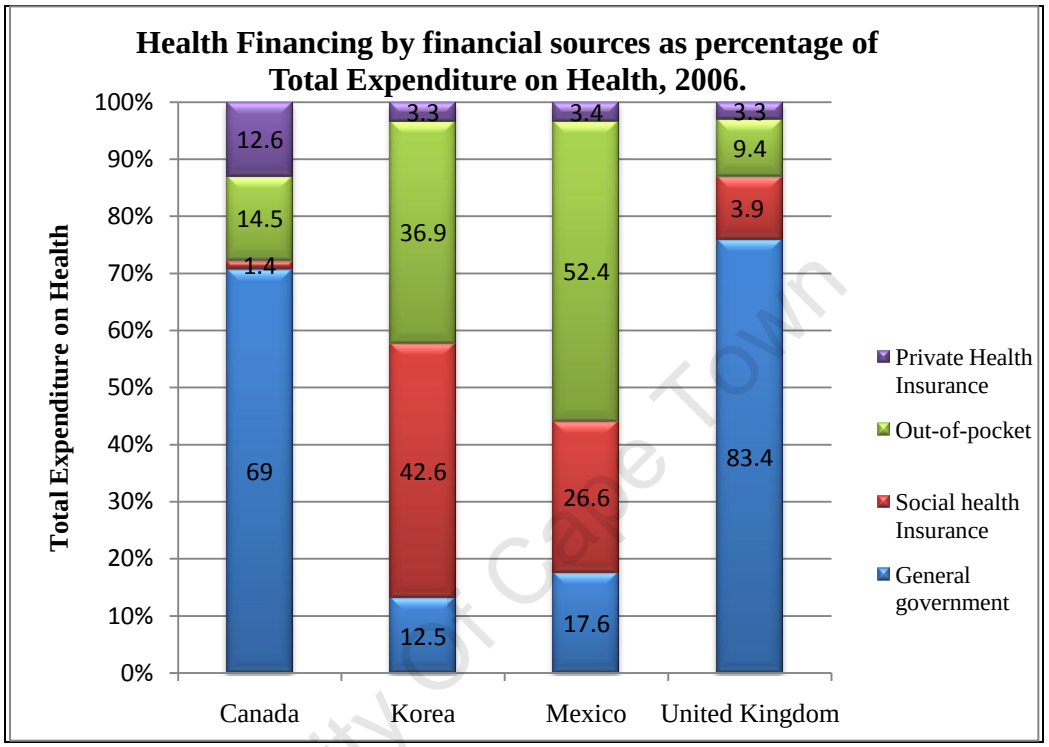
Table 1 Health financing by country and income levels in four OECD countries, 2006

Country	GDP per capita (US$)	Per capita health expenditures (US$)[1]	Public Expenditure on Health as a % TEH	Private Expenditure on Health as a % TEH
Canada	39234	3678	70.4	29.6
Korea	18387	1480	55.1	44.9
Mexico	8004	794	44.2	55.8
United Kingdom	39793	2760	87.3	12.7
OECD averages		**2824**	**73**	

Source OECD HEALTH DATA 2008,

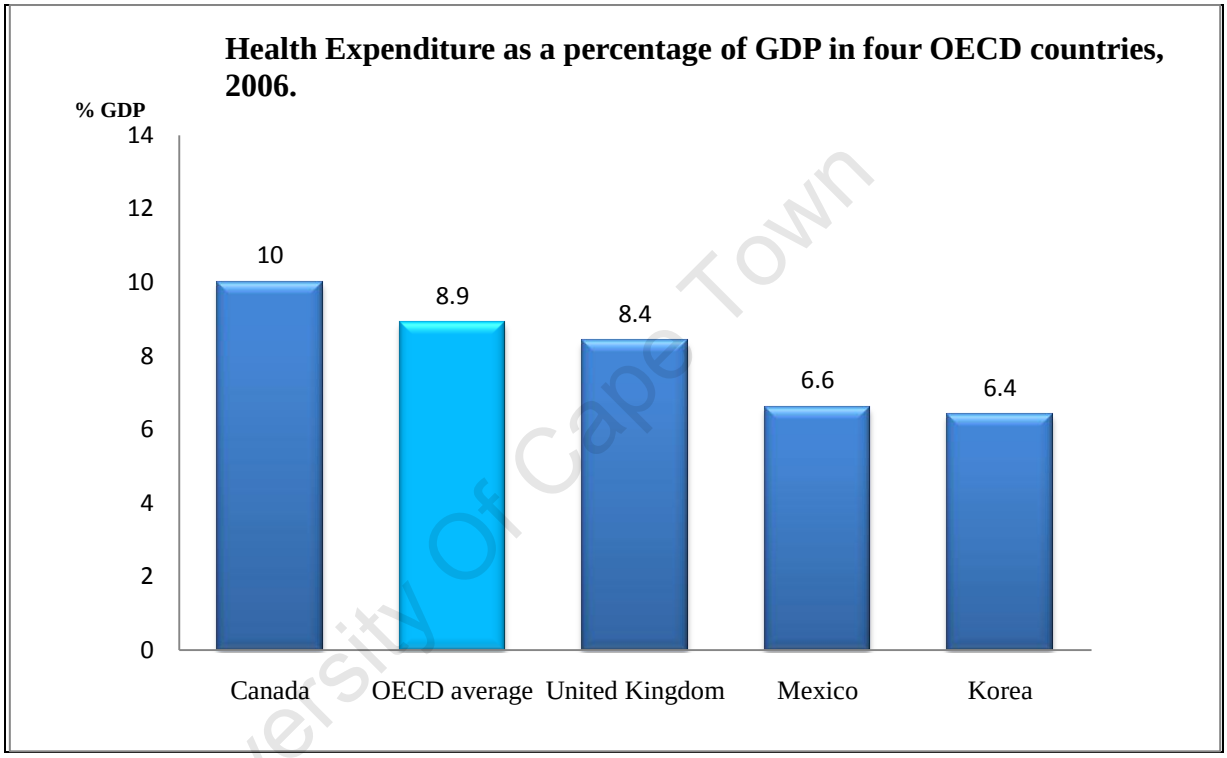
Figures

Figure 1 Health financing by financial sources based on 2006 estimates.



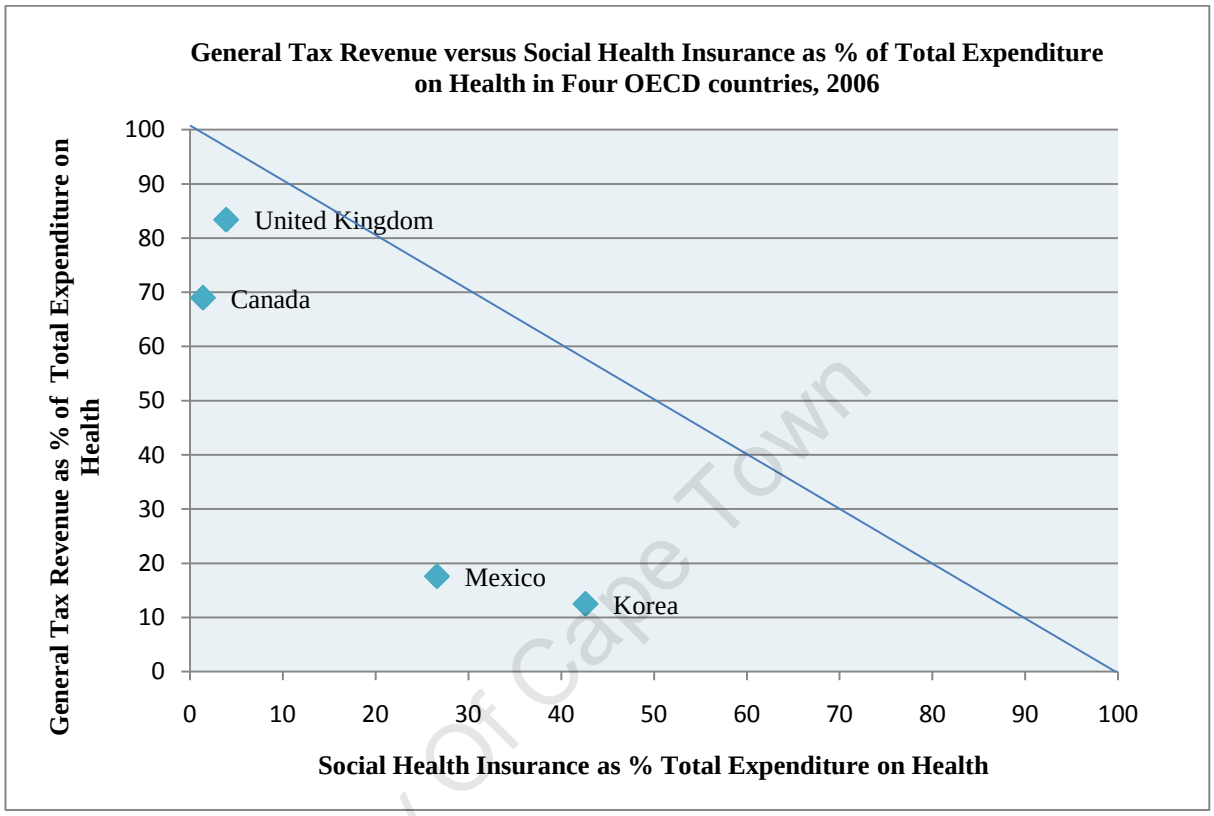
Source OECD HEALTH DATA 2008,

Figure 2 Health Expenditure as a percentage of GDP in four OECD countries, 2006.



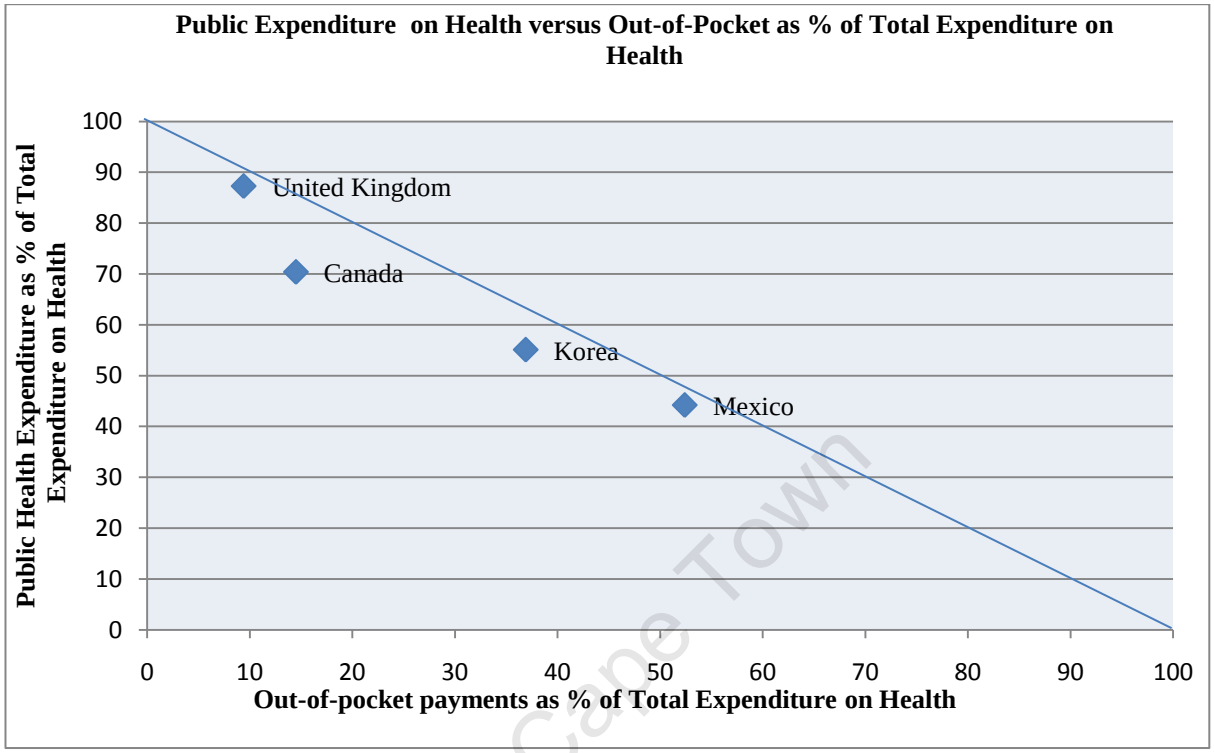
Source OECD HEALTH DATA 2008

Figure 3 The share of general tax revenue versus social insurance contributions as a percentage of total expenditure on health for selected OECD countries, 2006.



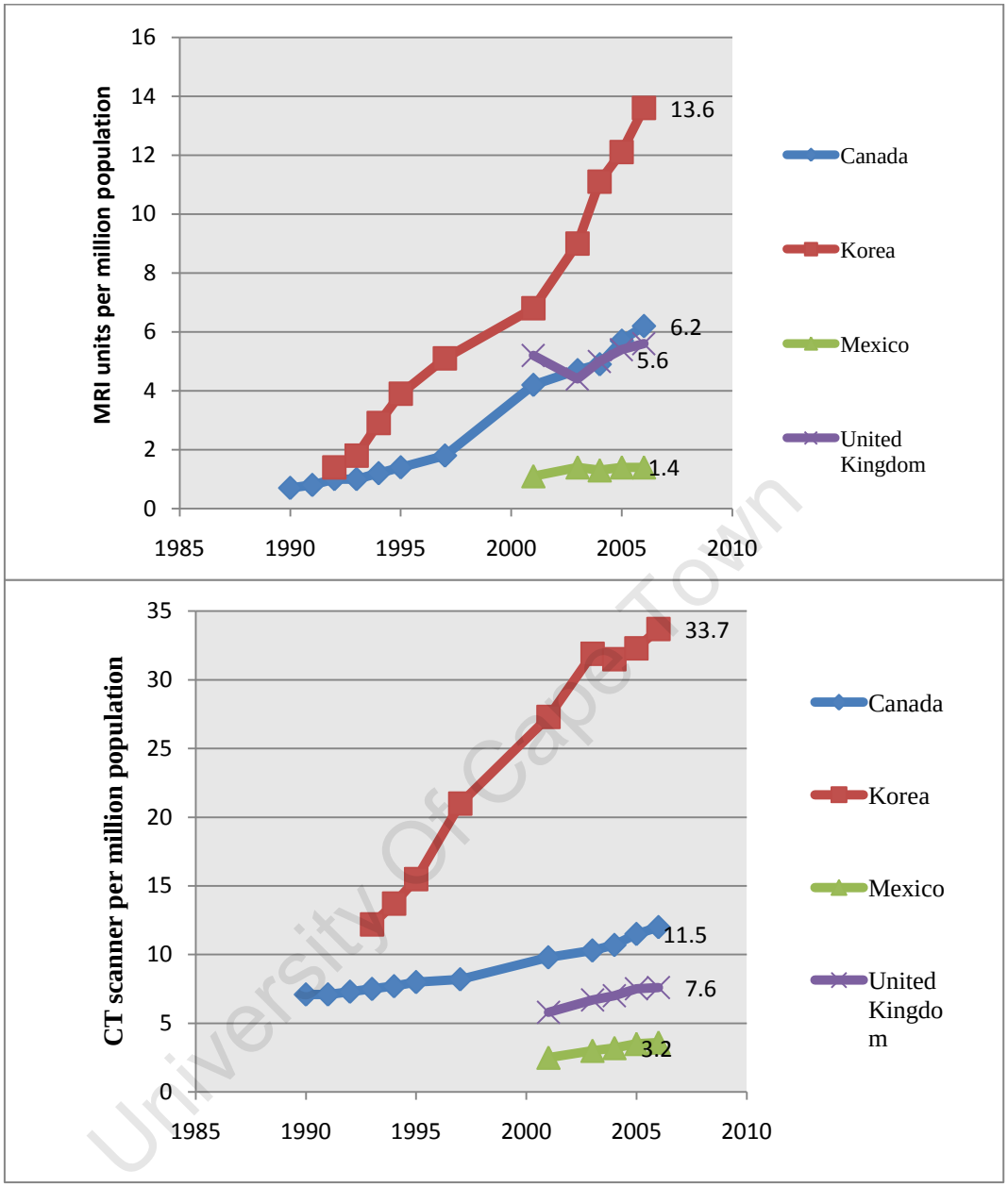
Source OECD HEALTH DATA 2008,

Figure 4 Public Expenditure on Health versus Out-of-Pocket (OOP) Payment as a share of the Total Expenditure on Health in four OECD countries, 2006



Source OECD HEALTH DATA 2008,

Figure 5 CT and MRI units in four OECD countries, 1990-2005



Appendix 1: Suggested online Appendix to accompany article

(Additional file 2)

CANADA

Revenue collection	Domestic source of revenue: burden placed on companies and households through taxation, health insurance contributions and out-of-pocket payments.
Contributing mechanisms	General tax revenue generated from income taxes, employment-based health insurance, the Canada pension plan contributions, provincial sales tax (PST) collected by provinces with the rate varying across provinces tax and goods and services tax (GST) charged at 5%. Some provinces combine the GST and PST into one harmonized sales tax (HST) charged at 13%. Some and goods are zero-rated and not liable for GST. An earmarked tax or "premium" is set aside to supplement health revenues in some provinces. Major taxes collected are: excise duties, income taxes and fuel duties. Over 73 federal, provincial and territorial taxes collected. Of total taxes collected 49% are collected at federal level and 51% from provincial and territorial taxation. The proportion of federal corporate income taxes (CIT) is (35%), while the provincial CIT is (18%). Other federal taxes are employment and payroll taxes (13%), property taxes (14%), taxes on corporate capital (4%), other taxes (17%). The federal income tax rates for 2009 ranged from 15-29%: • 15% on the first $40,726 of taxable income, + • 22% on the next $40,726 of taxable income (on the portion of taxable income between $40,726 and $81,452), + • 26% on the next $44,812 of taxable income (on the portion of taxable income between $81,452 and $126,264), + • 29% of taxable income over $126,264. Complementary private health insurance offers coverage for health goods and services not covered by the public plan (Medicare).The self-employed also purchase complementary PHI. Duplicate private health insurance This type of health insurance facilitates faster access to privately delivered care or serves as an alternative to the public plan. It is outlawed in most provinces. Until recently only four provinces: New Brunswick, Newfoundland, Nova Scotia and Saskatchewan did not impose any restrictions on duplicate private health insurance. This insurance can cover

all or part of services rendered by opted-out physicians (a physician who has given up his rights to bill the public plan to practice in the private sector). Only in Nova Scotia that physicians (opted in or out) are not allowed to charge more than the public rate plans. Newfoundland doesn't impose any restrictions on the range of services private health insurance can cover. But the market share for this alternative PHI is limited since subscribers are not offered subsidies. The other provinces that had imposed a ban on duplicate insurance among them Quebec, Alberta and British Columbia have lifted the ban following the 2005 lawsuit in Quebec province.

Out of pocket payments constitute 15% of total health expenditure, and are the second most important source of funds in this health system.
Payments are made for private health goods and services such as ophthalmic care, over-the-counter medication and complementary and alternative therapies, extra-billing charges, services offered by opted-out physicians and provision of uninsured services that neither public nor private insurance plans insure.

Other sources of funds are the mandatory employer contributions made to the provincial workers' compensation schemes managed by provincial workers' compensation boards (WCBs). Much of this money is paid directly to provincial health authorities and individual health facilities for the provision of health services. Others are donations from charitable organization directed towards health research, upgrading of facility infrastructure and equipment acquisition are other sources of funds for Medicare.

Collecting organizations

The Canada Revenue Agency collects federal taxes**.**

By 2004, 126 insurance companies provided health insurance plans for Canadians.

Risk pooling

Coverage and composition risk pools

Federal government finances, administers and delivers health care for First Nations people living in reserves, the Inut, the armed forces and the Royal Canadian Mounted Police, veterans and inmates of federal prisons.

The rest of the population is covered under Medicare which consists of thirteen single payer tax-financed

provincial plans. Given the sheer size of these pools, the income and risk cross-subsidies are great.

Complementary insurance insures 65% of the population.

Allocation mechanisms

Taxes are collected centrally. Most revenue raised by federal government is transferred to provinces, while some is spent on public health, pharmaceutical regulation and drug safety and on health care services for certain population groups.
Federal government allocates tax revenue to provincial governments in the form of a federal transfer the Canada Health Transfer, which flows on a per capita basis.

Provincial governments in turn allocate CHT based on either population-based funding or historical budgets to regional health authorities.

Health insurance companies reimburse health providers based on claims made by the insured for medical expenses paid.

Purchasing

Benefit package

General practitioners are independent contractors and serve as the first point of contact acting as gate keepers to other levels of care. Patients have a choice of primary care provider but most have long standing relationship with GPs.

The 13 single payer systems cover a wide range of hospital and physician. Medically necessary services as stipulated in the Canadian Health Act are offered free of charge and include; ambulatory physician services, specialized ambulatory care, elective surgery, secondary, tertiary and emergency care. Services excluded from Medicare's benefit package can be accessed from private providers through private financing either through private health insurance or direct payments. Provincial tax-financed drug plans (Pharmacare) cover out-patient prescriptions for social assistance receipts and the elderly.

Provider payment mechanisms

Physicians are reimbursed on a fee-for-service basis accounting for 83% of total remuneration with the exception of community clinics in Quebec where physicians are on salary contracts. Some provinces have adopted blended system of payment of salary, capitation and FFS for family/general practitioners. Salaries are the preferred provider payment method for all cadre of nursing personnel based as well as pharmacists most employed in the commercial sector (for-profit retail pharmacies).
Regional health authorities reimburse hospitals and clinics through global budgets.

Provision

Each province and territory has its own laws governing the single payer system. Provincial governments are responsible for funding hospitals, setting physician remuneration rates, providing public health services, assessing health technologies and funding health research. All provinces manage respective prescription drug plans and directly or directly provide home based care. The 13 payer systems are diverse with wide inter-provincial variations in financing and provisions regulations.

Health care is delivered in the private sector. Hospitals are privately owned and are not-for profit institutions that are funded through global budgets and managed by RHAs. For-profit hospitals do not qualify for the block grant and prohibited from providing publicly funded services.

Primary health care is the first level of care and point of contact between the patient and the health care system. The services covered at primary care level include maternal and child health care and other non-acute medical care services. Patients have a choice in selecting a family practitioner with most patients having established relationships with respective physicians. Canadian physicians are permitted to opt-out of the public system (Medicare) and join the private sector and set their fees at any level but in seven provinces opted-out practitioners are not eligible for public subsidies while in the remaining three provinces, a price cap is imposed on opted-out

physicians since they cannot bill patients more than the amount payable by the public plan.

Health personnel are under supplied. 2.1 and 8.7 practising physicians and nurses per 1000 population, respectively.

Long term care is provided in nursing homes run by regional health authorities or independent for-profit or not-for-profit organizations.

KOREA

Revenue collection
Source of funds

Domestic funding: households and companies bear the burden of financing health care services through general taxation, mandatory insurance contributions, private health insurance and out-of-pocket payments.

Contribution mechanisms

General tax revenue is generated from VAT (37.1%), personal income tax (12.7%), corporation tax (15.3%), social security (19.5%), property tax (11.8%) and other taxes (3.6%).
Personal income tax is structured progressively with the marginal tax rate ranging from 9% -36%. Both domestic/foreign and for-profit/ non-profit companies are subjected to the corporation tax charged at tax rate of 15% and 27%.

VAT is charged at 10% with many good and services exempted from the tax while others are zero-rated.

Social health insurance contributions are paid by employees, employers and the self-employed.
For industrial workers, civil servants and private school employees the contributions are proportional to wage income and shared equally between employer and employee. The contribution rate is 5.08%. There is a wage ceiling for contribution assessment of a monthly wage of US$ 50 000, a very high value with very few individuals in this category.
For the self-employed, the contribution formula is based on income and property. For the income component the contribution is based on taxed income for those earning above US$5000 or an estimated income for those with annual incomes below US$ 5000. The calculation of the estimated income takes into account the demographic information of the insured, household property and the car tax paid by the household. The contribution is made monthly. Defaulting for more than three months results in cancellation of health insurance benefits.

Government partially subsidizes 22%-50% of contributions for the self-employed and low income earners. Low income earners in island and remote rural areas receive 10-30% of the while the disabled and those aged above 65 receive 30% for the. 80% of the subsidy is from general government budget while 20% is from the earmarked cigarette tax. Additionally, the

poor and unemployed receive full subsidization of their contributions.

Out-of-pocket-payments: The largest proportion of out-of-pocket payments is for co-payments on insured services either in the form of a deductible or co-insurance. The deductible is a flat fee of 4 USD for each unit of service while the co-insurance is levied at various rates for different services. The co-insurance for outpatient service ranges from 30% to 55%, 10 to 20% for inpatient services and 30% of total cost of drugs at pharmacies. The co-payment for outpatient care is set higher than for physician clinics to encourage patients to visit physicians as opposed to hospital outpatient departments.
In addition uninsured services are accessible on an out-of-pocket basis.

Supplementary private health insurance insures mostly against chronic illnesses such as cancers, new services and technology that are not insured by the NHI by facilitating the reimbursement of co-payments on some of these services.

Collecting organizations

The National Tax Service (NTS) is the main tax collection body.
The mandatory contributions are collected and managed by the National Health Insurance Corporation (NHIC). The contributions include monthly payroll deductions from formal sector employees and monthly payments by the self-employed based on income.

Risk pooling

Coverage and composition of risk pools

There are three main pools: the SHI pool covering 96% of the population, the general tax revenue pool covering 4% of the population (Medical Aid) and private health insurance pool covering 3% of the population

The PHI pool doesn't not allow for adequate cross-subsidies because premiums are risk-rated

Allocation mechanisms

Purchasing

Benefit package

The benefit package in the NHI was very has been incrementally extended to offer coverage to new services and technologies such as CT scanning.

The range of health care benefits are either in form of cash or benefits in-kind, the latter constitutes 99% of all inpatient benefits. Cash benefits are allowances

made for health care provision at non-NHI providers, compensation for excess levying of co-payments and to purchase appliances for the disabled such as hearing aids and wheel chairs.

Curative services are the main insured services, unlimited inpatient days, medicines dispensed in pharmacies, CT scanning technology, traditional medicine meals during hospitalization, nursing, ambulance services, bi-annual check ups and vaccinations. Screening for stomach, colon, breast and liver cancer are shared between insurer (80%) and beneficiary (20%). Uninsured services are those that are not life-threatening or impair physical activity such as plastic surgery

Provider payment mechanism

Medical claims are reviewed by the central review agency Health Insurance Review Agency (HIRA). After the assessment by HIRA, providers are reimbursed by the NHIC on a fee-for-service basis.

Both private and public hospitals are reimbursed on similar fee schedules. The common fee schedule (FFS) for both primary and tertiary care gives economic incentives to providers to over-service.

There are few hospitals that reimburse inpatient services based on the prospective Diagnostic Related Groups (DRG) -based payment system.

The resource-based relative value (RBRV)-based payment method is used to reimburse outpatient office-based physicians. Physicians receive substantial revenue from patients from payments made directly on an out-of-pocket basis mostly for provision of uninsured services. Hospital-based physicians are on salaried contracts.

Provision

90% and 100% of acute care hospitals and physician clinics, respectively, are privately owned. Public sector controls close to 10% of acute care hospitals that include tuberculosis, leprosy and psychiatric hospitals as well as the *Bogeunso* or public health centers and the National Medical Centre.

The acute care bed capacity is 6.8 per 1000 population while the psychiatric bed capacity is 0.8 per 1000 population.

Both Western-trained and traditional practitioners work in the NHI. About, 90% of specialists work in the private sector whereby a quarter of practising doctors possesses two medical specialties with specialists accounting for 80% of all practicing medical doctors.
The number of practicing specialists per 1000 population was 1.1 while practising nurses were 4 per 1 000 population.

MEXICO

Revenue collection

Source of funds

Domestic funding: burden of financing placed on companies and individuals through general taxation, mandatory insurance contributions, private health insurance and out-of-pocket payments.

General tax revenue is generated from both federal and state taxation. Federal taxes include personal income taxes (PIT), corporate income tax (CIT), payroll taxes mainly channelled to social security accounts, value added tax (VAT), tax on gasoline, excise and import duties which account for close to 95% of all taxes collected. State general tax revenue derived from three main sources; hotel occupancy, lotteries and payroll deductions which account for 90% of total revenue, while other excise taxes and duties account for 10%. Income taxes are only collected at federal level with low income earners being exempt. The marginal income tax rate range from 3% for the lowest income tax come taxpayer to 30% for highest income taxpayer. VAT is charged at 15%, but many goods are zero-rated and not VAT exempt.

Social health insurance contributions are mandatory for all formal sector workers. The health insurance component is part of the wide social benefits the social security systems provide. Other include; life insurance, pension, disability and sometimes childcare and recreation benefits.

The institutions in the social security system are the *Instituto Mexicano del Seguro Social* (IMSS, Mexican institute for social security); the *Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado* (ISSSTE); the *Instituto de Seguridad para las Fuerzas Armadas Mexicanas* (ISFAM, for the armed forces), and medical services provided by and for the national oil company (PEMEX), the *Secretaría de la Defensa Nacional* (SDN, department of national defense), *the Secretaría de Marina* (SECMAR, navy department), and the *Sistema de Transporte Colectivo del Metro* (underground transport system).

The contribution to social security systems is tripartite in nature shared among federal, state and households or companies. There are three funding components of the social security schemes: the first component is a fixed allocation per family or 'social quota' funded by

the federal government, it promotes social solidarity among all population groups; the second component is the co-responsible contributor which guarantees solidarity in each population group and redistribution among states. It is shared between employer and state; the third component is the pre-paid family contribution, which is progressive and redistributes family income. The contribution is a monthly payroll deduction set at a progressive proportional rate to the wage.

The current contributions are 4.275% for Old Age benefits; 2% for the complementary pension scheme (SAR); 2.375% for survivors and disability and 1.425% for medical care for retirees. The contributions are up to 25 times the minimum wage and are limited to up to fifteen times the wage with the exception of SAR. Contributions are paid in these proportions: employer 70%; employee 25% and government 5%.

For those outside the formal sector, 'the mandatory' contribution is collected through three voluntary schemes: *Voluntaria al Regimen Obligatorio* (Voluntary Incorporation to the Obligatory Regime); *Seguro de Salud para la Familia* (Health Security for the Family); and *Seguro Popular* or Popular Health Insurance (PHI) the spring board to universal coverage.

With the exemption of the *Seguro Popular* which covers a comprehensive range of health services, the other two schemes offer benefits similar to those offered to formal sector workers but with key exclusions: individuals with pre-existing conditions are not eligible to enrol, while some surgical procedures and expensive treatments are not covered.

Seguro Popular contributions are tripartite in nature similar to contribution arrangements in formal sector schemes. The first component is the federal social quota. It was 15% of the mandatory minimum wage in 2004; for the co-responsible contributor, the co-responsibility is between state and federal governments and that takes into account the variations in development across states since *Seguro Popular* beneficiaries are unemployed. The federal contribution is on average 1.5 times higher than the social quota with poorer states receiving higher increments than wealthier ones; the third component is the family

contribution, but families in the lowest two income quintiles are exempt from the family contribution. For households in other income quintiles, the upper limit of the family contribution is 5% of disposable income defined as total household expenditure minus spending on basic needs such as food. One contribution level is required for each of the other income quintiles with the exception of households in the tenth quintile that requires two levels of contributions.

The other two voluntary schemes are financed through subscriber contributions and a federal contribution, which is an advanced payment of the annual premium. The annual contribution ranges from US$100-250, while the federal subsidy is close to US$110. The high premiums are an impediment to enroll in these voluntary schemes.

Private health insurance is primarily voluntary purchased by individuals and to a lesser-extent employer-based in some private sector companies

Out-of-pocket payments:
The biggest share of out-of-pocket payments (51%) is attributable for charges in the private sector. Patients pay directly for medicines in retail pharmacies for both prescription and non-prescription drugs, out-patients consultations and all services (diagnostic and treatment) offered by private sector providers. Subscribers of private health insurance pay out-of-pocket for co-payments and deductibles.

The other share (49%) of out-of-pocket spending is from user fees in public sector hospitals. User fees are levied for in-patient care, medicines, dental care, most out-patient services except for maternal and child care. The poor are granted fee waivers that are determined through socio-economic evaluation.

Collecting organization

The Secretary of Finance and Public Credit or the Hacienda is the tax collection authority that collects all federal revenues

The *Seguro Popular* scheme is managed by the National Commission of Social Health Protections. The Mexican Institute for Social Security and the Housing Fund collect contributions for schemes that make up the social security network.

Risk pooling

Coverage and composition of risk pools

There are three main pools the general tax revenue pool covering 50% of the population, the SHI pools covering 50% and the PHI covering about 3% of the population**.**

The largest of the social security programmes is IMSS which insures private sector workers and their dependants totaling 44.5 million members (45% of the Mexican population), followed by ISSSTE covering government workers and their employees. Together the two insure 95% of total formal sector labour force with the remaining 5% insured through the other employer-based schemes. The mandatory social insurance pool consists of over seven risk pools which are financially fragmented and cannot harness the economies of scale in management since the organizations have different management structures.

The 50.5 % of the population was dependent is intended to be covered by *Seguro Popular*.

PHI covers mostly the affluent and enables access to high quality care in private sector services for-profit hospitals and clinics.

Allocation mechanisms

Federal allocation under System for Social Protection in Health (SSPH) is divided into four components: health related public goods that include stewardship roles of the SSA; Fund for Community Health Services; non-catastrophic personal health services and catastrophic high cost personal health service. The stewardship functions (planning, information, evaluation, research and human resource development are financed by the SSA's or ministry of health budget.

The catastrophic fund (FPGC) receives 8% of the federal social quota plus the federal and state solidarity contributions. An additional 2% is set aside for infrastructure development in marginalized areas and reserve fund of 1% of the total is designated for unexpected increases in service utilization and provisional payments across all states. The three funds are pooled at federal level, a measure that guarantees adequate and equitable risk pooling across the entire population attributable to the large risk pool.

The remaining social quota and solidarity contributions are allocated to states to finance the essential benefit package under *Seguro Popular* while the entire family contribution is collected and maintained at the state level.

The SSHF handles IMSS funds and transfers pooled revenue to either a public or private managed care organizations (MCO) based on a prospective capitation basis.

Patients pay directly for services in the private on a fee-for-service basis.

Purchasing

Benefit package

Those insured under mandatory social health insurance schemes have access to free a range of services at the institution own facilities.

The *Seguro Popular* benefit package comprises 249 interventions and 17 catastrophic interventions. Primary care essential services include ambulatory care, out-patient consultations and hospitalizations and basic specialties. Interventions covered under the FPGC are ailments that caused catastrophic expenditures among the uninsured population that are now insured and include treatment of childhood and cervical cancers at all stages, cataract extraction, severe trauma, cardiovascular ailments, cerebro-vascular diseases, HIV/AIDS, long term rehabilitation, neo-natal intensive care, organ transplant and dialysis. Secondary care is mostly ambulatory, hospitalization and emergency care in general hospitals that provide basic specialties or specialty hospitals where imaging diagnostics and laboratory services are provided. At tertiary level, specialized care is provided

Provider payment

The private sector represented by private health insurance plans and private medical care organizations that reimburse hospitals on a fee-for-service basis.

Voluntary participating hospitals (15 in total) and clinics under the IMSS are reimbursed based on diagnosis, related groups (DRG) introduced.

Prospective capitation is used to reimburse private MCOs and IMSS affiliated Medical Areas. A medical area is responsible for 260 000 enrolees, and comprises of a several primary care units, a secondary level

hospital reimbursed on a capitation basis with contracting out for specialty care, to the 41-IMSS run tertiary hospitals.

Provision

There are 4 000 hospitals in Mexico with 1 047 belonging (26.2%) to the public sector with a larger proportion (85%) of general than tertiary level hospitals at 13.2 %. The private sector is the largest provider controlling close to 70% of acute care but is concentrated in the large metropolitan cities. For-profit hospital sector groups consisting of several hospital groups but a move towards monopolisation by one group possibly through mergers and acquisition has been growing.

The non-profit providers such as the Mexican Red Cross and nongovernmental organizations provide health services that relate to HIV/AIDS and reproductive health with minimal provision of primary care service and are not significant providers.

Human resources are under supplied. There are 1.9 physicians per 1 000 population in 2006 and 2.3 nurses per 1 000 population. For the insured formal sector workers health care access is free at the point of use. Medical facilities are owned and funded by each social insurance agency, which also employs its health personnel. The largest employer is IMSS with 360,000 employees.

UNITED KINGDOM

Revenue collection

Source of funds

Domestic funding: households and companies bear the financing burden through general taxation, mandatory insurance contributions, private health insurance and out-of-pocket payments.

Contributing mechanisms

General tax revenue is generated from personal income tax (28%), VAT (15%), National Insurance (17%), Corporation Tax (10%), Other indirect taxes (10%), Local tax (4%), Capital taxes (3%), Other taxes (13%)

Personal income tax is operated through a system of allowances and bands of taxable income which is subject to different tax rates depending on the tax band the income falls under. Two main income taxes are: personal income tax and National Insurance contributions. Personal income rates are structured progressively with lowest marginal tax rate being 10% and the highest 40%.

The main marginal rate for Corporation tax is 28% but small companies with profit rates ranging between £300,000 and £1,500,000 lower and upper limits, respectively are charged a rate of 21%.
VAT is charged at three rates 0%, 5% and 15%. The standard VAT rate is 15% with some good zero-rated or charged a reduced rate of 5%. Many basic goods are VAT exempt.

National Insurance contributions: These provide auxiliary funds to the NHS budget. They are mandatory deductions of earnings by employers, employees and the self-employed.

NI contributions are capped consisting of upper and lower limits for employee and employer contributions. The self-employed pay a flat rate weekly and a progressive yearly rate of total earnings. NI contributions are channelled to the National Insurance Fund managed by Treasury, from which a fixed proportion is channelled to the NHS.

The NIC rates for the year 2008- 2009 were:
Employees: NIC rates of 11% on earnings between the primary threshold [(PT) £105 per] and an upper earnings limit (UEL, £770). Earnings above the UEL are subject to an extra 1% of earnings.

Employers: paid NICs for each employee earning above the secondary threshold [(ST) also set at £105 per week in 2008-2009)], at a rate of 12.8% of all earnings above this level.

Class 2 and class 4 NICs are applicable to the self-employed. The class 2 contribution is a weekly flat rate of £2.30 for 2008-2009 by those with earnings exceeding £4, 825 per year. Class 4 contributions are paid at 8% on profits that range from lower profits limit (£5,435 yearly for 2008-2009) and the upper profits limit (£40, 040 per year for 2008-09) with 1% charge on profits above the upper profits limit. Class 3 contributions are made voluntarily by UK citizens living outside the country, at a weekly rate of £8.10 for 2008-09.

Duplicate private health insurance (PHI).
12.8 % of the population has private health insurance. PHI subscribers still retain full access to publicly delivered services but PHI finances flow primarily to private hospitals, and other providers of alternative care such as home nurse services. Private health insurance mainly insures against acute care costs in private hospitals. There are three product types that extend coverage beyond the acute care benefits, ranging from the most expensive comprehensive policy to standard policy and the cheapest budget policy that offers the least benefits. Pre-existing medical conditions, conditions and services that place insurer to moral hazard and expensive resource-intensive services are not insured.

Employers-based PHI represents 59% of the total while individual plans account for 31%. The remainder 10% is from voluntary employee-paid groups facilitated by professional organizations or trade unions. Some companies leave the cost of financing all or part of premium costs to employees.

An Insurance Premium Tax of 5% is charged for insurance companies. Private health insurance companies pools funds from employee deductions, while individuals pay directly to the companies.

Health cash plans The benefit paid is a fixed proportion of the amount paid out-for-pocket by the patient, with an annual cash benefit ceiling of the cash amount that can be reimbursed by the plan. This monetary amount is limited compared to

reimbursements paid via private health insurance. Premiums are paid weekly, monthly or yearly. There are 35 providers of health cash plans, close to half (17%) of these companies sell for the most part PHI. Of the latter, 12 are non-profit (provident) organizations accounting for 90% of the market share. Health cash plans in general cover treatments that are wholly not covered or partially covered under the NHS such as dental care, ophthalmic care and complementary care which includes acupuncture, osteopathy, chiropractic, chiropody, homeopathy, physiotherapy, day-care admission. The plans also provide coverage for services that are similar to those covered under the NHS such as reimbursement towards private specialist consultation.

Out-of-pocket payments are made for services that are not covered under the NHS such as private beds at NHS hospitals (at patient's request), prescription drugs, dental care, ophthalmic services and long term care for the elderly.

Collecting organizations

Taxes and NI contributions are collected by the central collecting agency, Her Majesty's Revenue and Customs (HMRC).

Private health insurance contributions are collected directly from enrolees (employees and employers) by the 27 insurers shared on a 50:50 basis between provident and commercial (for-profit) companies. PHI is either sold directly by the insurer or through professional intermediaries. There are over 3000 intermediaries mainly insurance brokers and independent financial advisers providing limited PHI in the individual market. Close to 85% of PHI sales in the individual market are made directly by insurers to subscribers.

For health cash plans, sales are directly made by the subscriber through sales representatives and to lesser extent intermediaries.
8.1% of the population have access health cash plan but the proportion of those with both PHI and health cash plan is still undetermined

Risk pooling

Coverage and composition

There are two main pools: the general tax pool which covers 100% of the population and the PHI pool covering 12.8% of the population.

of risk pools	The general revenue fund pool allows for income cross-subsidization due to the progressive nature of income taxes. The demand for PHI is intertwined by two factors, one is the perception on the quality (mostly non-clinical dimension) of care provided by the NHS and secondly the subscribers' characteristics. Subscribers are often males aged 40 to 65, higher income earners, executives in highly skilled professions and political-affiliates of the Conservative party. Premiums are community-rated for group plans allowing for cross-subsidies and risk-rated for individual PHI, which limits cross-subsidies. There is fragmentation of risk pools in the PHI market given the multiple insurers offering different benefit packages.
Allocation mechanisms	The national government allocates the overall Department of Health Budget (the NHS budget) in line with its annual overall public spending plan. The Department of Health then determines the allocation of monies to primary care trusts (PCTs) which breakdown the allocation to the two main health sectors; hospital and community health services and primary care or family health. The allocation of budgetary funds to PCTs or purchasers is by the use of a weighted capitation formula. There is pool integration among the various geographically defined risk pools, the primary care trusts, through the needs-based allocated formula. Generally, insurers reimburse the providers directly while specialists bill the patients who then claim reimbursement from the insurer.
Purchasing **Benefit package**	99% of the population is registered with PCTs (GPs practices) that are independent primary care providers contracted by the NHS. GPs work in group practices averaging 5 practitioners. Patients are referred to specialist care by GPs. The gate keeping role is a defining characteristic of the NHS. Beneficiaries have access to a wide range of services free at the point of use. The benefit package is not explicitly, thus a wide range of services are publicly funded. There are very few exclusions from the benefit package such as dental care, eye care, alternative

therapy and cosmetic surgery. These services are privately delivered and privately financed either through private health insurance or out-of-pocket payments.

Primary health care is subsidized by public monies and is free provided by independent primary care providers. In-patient care at NHS hospitals is free except for amenity care.

Prescription drugs are subsidized but a flat rated fee is charged on all prescriptions. Nonetheless an estimated 85% of prescription items dispensed do not qualify for the prescription fee. Some population groups are exempt from the prescription charge and include: the elderly, pregnant women, children under the age of 16, low income earners, NHS in-patients and patient visiting STD clinics and social assistance receipts.

Independent contractors commissioned by PCTs provide eye care to NHS patients. Following the deregulation policies of the 1980s that placed undue restrictions to ophthalmic services, patients meet all costs for eye care except for (children, low income earners and people with special eye. In addition children, pregnant women and nursing mothers and people on welfare grants are exempt from making dental payments

Provider payment mechanisms

The purchasers of health care services are Primary Care Trusts (PCTs) in England, local health groups (LHGs) in Wales. PCTs cover 50 000-250 000 people.

GPs are paid on a capitation basis in addition to fixed allowances, health promotion payments and item of service payments or quality points. Hospital doctors and other health professionals are on salaried contracts. Specialists working for the NHS on a full time basis have flexible contracts that allow them to earn up to 10% of the gross income from private practice while those on maximum part-time contracts do not have restrictions on their earnings from private practice. They can work unlimited hours in the private sector by giving up an eleventh of their NHS salary.

Hospitals are reimbursed based on Health Care Resource Groups (HRGs).

Private providers are paid on a fee-for-service basis.

Provision

The delivery system comprises strategic health authorities and primary care trusts (PCTs) the former responsible for strategic planning while PCTs commission services on behalf of NHS patients. Health care is accessed through primary and community health facilities and hospitals where a range of range of services are provided such as health promotion, preventative care, self-care, rehabilitation and aftercare.

There are 0.7 GPs per 1 000 population.
There is limited private general practice with just over 200 exclusively private GPs in the UK who are not allowed to treat NHS patients privately. There are over 36 walk-in clinics run by the private sector.

Secondary care either elective or emergency care is provided in the 200 general acute NHS trusts and 400 community care hospitals and specialised tertiary level care facilities. Emergency services are handled by ambulances provided under the NHS Ambulance Trust. The number of acute hospital beds is 2.2 per 1000 population.

There are about 230 private hospitals dominated by 5 hospital groups accounting for 65% of private hospitals and 65% of private hospital beds. The NHS has a higher hospital bed capacity than the private sector which controls less than 5% of the total hospital beds.

The number of health professionals has increased to 2.5 practising physicians per 1 000 population and 11.9 nurses per 1 000 population.

Most diagnostic and laboratory services are located within the NHS's community and acute general hospitals. GPs make diagnostic referrals if procedure cannot be performed at primary care level or contract out to the private sector especially for pathological assessment.

Pharmaceutical services are provided by community pharmacists contracted by the PCTs. Pharmacists dispense drugs and appliances prescribed by GPs as well as over-the-counter pharmaceuticals

PART D: APPENDICES

Appendix 2: Ethics approval letter

Appendix 3: List and definition of variables

VARIABLE	VARIABLE EXPLANATION
A. Expenditure on health (Total, Public, Private) 1. Total expenditure on health 2. Expenditure on personal care 3. Expenditure on collective health care 4. Current health expenditure by provider **5.** Additional health expenditure aggregates	**Total expenditure on health**: sum of expenditure on activities that through application of medical, paramedical and nursing knowledge and technology to promote health and prevent diseases among other goals. **Current expenditure in health (total, public, private)** is the sum of total personal and total collective service but excludes investment. **Investment on medical facilities (total, public, private)** comprises gross capital formation of domestic health care provider institutions excluding retails sale and other providers of medical goods.
B. Health care financing	**Health expenditure by financing agent or scheme** **Public expenditure on health**: same as total expenditure on health **General government (excluding social security)**: expenditure on health incurred by central, state and local authorities excluding social security schemes. **Social security schemes:** expenditure on health incurred by social security schemes including social health insurance funds. Private expenditure on health: Out-of pocket payment (households): cost-sharing, self-medication and other

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Abstract

Background

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Methods

Text for this section of the abstract…

Results

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Conclusions

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Main body

Background

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Methods

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Results

Sub- heading for this section

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Sub- heading for this section

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Sub- heading for this section

Text for this sub-section.

Discussion

Text for this section.

Conclusions

Text for this section.

Competing interests

Text for this section.

Authors' contributions

Acknowledgements

Text for this section.

References

1. Shuman S: **Structure, mechanism, and evolution of the mRNA capping apparatus.** *Prog. Nucleic Acid Res. Mol. Biol* 2000, **66**:1-40
2. Chomczynski P, Sacchi N: **Single-step method of RNA isolation by acid guanidinium thiocyanate-phenol-chloroform extraction.** *Anal Biochem* 1987, **162**:156-159
3. Sambrook J, Fitsch EF, Maniatis T: *Molecular Cloning: A Laboratory Manual.* Cold Spring Harbor, Cold Spring Harbor Press 1989
4. Wessely S, Wood F: **Peer review of grant applications: a systematic review.** In: *Peer review in Health Sciences.* Edited by Godlee F, Jefferson T. London, BMJ Books 1999, 14-31
5. Advisory Committee on Genetic Modification: *Annual Report.* London; 1999.

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3. Kharitonov SA, Barnes PJ: **Clinical aspects of exhaled nitric oxide.** *Eur Respir J*, in press.

Published abstract

4. Zvaifler NJ, Burger JA, Marinova-Mutafchieva L, Taylor P, Maini RN:

Mesenchymal cells, stromal derived factor-1 and rheumatoid arthritis [abstract]. *Arthritis Rheum* 1999, **42:**s250.
Article within conference proceedings

5. Jones X: **Zeolites and synthetic mechanisms.** In *Proceedings of the First National Conference on Porous Sieves: 27-30 June 1996; Baltimore.* Edited by Smith Y. Stoneham: Butterworth-Heinemann; 1996:16-27.
Book chapter, or article within a book

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8. Smith Y (Ed): *Proceedings of the First National Conference on Porous Sieves: 27-30 June 1996; Baltimore.* Stoneham: Butterworth-Heinemann; 1996.
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9. Margulis L: *Origin of Eukaryotic Cells.* New Haven: Yale University Press; 1970.
Monograph or book in a series

10. Hunninghake GW, Gadek JE: **The alveolar macrophage.** In *Cultured Human Cells and Tissues.* Edited by Harris TJR. New York: Academic Press; 1995:54-56. [Stoner G (Series Editor): *Methods and Perspectives in Cell Biology,* vol 1.]
Book with institutional author

11. Advisory Committee on Genetic Modification: *Annual Report.* London; 1999.
PhD thesis

12. Kohavi R: **Wrappers for performance enhancement and oblivious decision graphs.** *PhD thesis.* Stanford University, Computer Science Department; 1995.
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PART E: POLICY BRIEF

Introduction

The restructuring of health financing policy in many countries has been intensified following the World Health Assembly Resolution adopted in 2005 by Member States to introduce or strengthen universal coverage policy.

The goals of universal coverage are: to offer households financial risk protection (FRP) in order to avoid catastrophic spending and impoverishment from seeking care; to ensure equal access to health care based on relative need irrespective of ability to make health payments, social status or geographical location. This is achievable through increased prepayment for health care particularly through general tax revenue and mandatory health insurance, two health financing mechanism that promote universal coverage.

Given their long experience as universal systems, OECD countries provide valuable lessons to low-to-middle income (LMICs) countries considering the introduction of universal coverage policy.

This brief is based on an extensive review of experience in four OECD countries which have achieved or are attempting to achieve universal coverage. These countries were selected from different continents: Canada in North America, Mexico in South America, the United Kingdom in Europe and the Republic of Korea (South Korea) in Asia. It attempts to draw out examples of 'best practice' in relation to pursuing universal coverage.

Policy implications

Macroeconomic factors influencing revenue raising ability

Government's fiscal policy and the rate of economic growth determine the amount of revenue that can be raised from the tax system to finance government expenditure. Growth in the gross domestic product (GDP) facilitates the mobilization of financial resources at the domestic level, mainly through general tax revenue, to finance public spending (Gottret, Schieber 2006).

Canada and the United Kingdom implemented universal coverage laws during the industrialization era and rapid economic growth. Similarly in Korea, universal

coverage was introduced during the economic transition from an agrarian to an export-led economy characterised by high employment rates. Social health insurance was introduced to meet the health needs of industrial workers in return for sustained productivity and continued economic prosperity (Son 1998).

LMICs face challenges in mobilizing adequate general tax revenue due to low income levels and limited economic activity. For instance in 2006, government revenue accounted for 18 to 23% of GDP in LMICs compared with an average of 54% in high-income countries (OECD 2007). The greater revenue raising ability in high-income countries is attributable to two main factors: formalization of the economy, which widens the tax base and contracts the informal sector; and efficient tax systems that guarantee compliance and minimal tax evasion. Given that high-income countries derive a large proportion of general tax revenue from income taxes while in LMICs the emphasis is on indirect taxes, increasing taxation and excises on luxury items often only accessible by the wealthy, offers prospects for boosting general tax revenue (Gottret, Schieber 2006).

When embarking on universal coverage, LMICs ought to take into consideration the low economic activity, inefficient tax systems and the large informal sector. These factors hinder the revenue generation ability of the tax system. Other financing mechanisms such as mandatory health insurance contributions can be explored to augment revenue for the universal system in the transition to universality to capture revenue from other sources.

Financial incentives for the informal sector to make mandatory contributions

Given its vastness and heterogeneity (poor and non-poor, unemployed and self-employed) the informal sector is often poorly incorporated in SHI schemes. The experience of Korea and Mexico where mandatory contributions, account for a large share of public funding for health care, show that the financial sustainability of this financing mechanism is dependent on the size of the formal sector and the contribution rate. If the primary revenue base for mandatory insurance contribution, often formal sector workers, is not large enough to raise adequate revenue to subsidize contributions for the informal sector then other mechanisms have to be put

in place to subsidize coverage or encourage enrolment of the informal sector in mandatory prepayments schemes.

One of the ways would be to increase the contribution rate in order to boost revenue. However, high contribution rates result in informalization of the economy as formal sector workers may opt out of formal employment and it may also limit willingness to pay resulting in evasion. Low contributions rates therefore seem more appealing but too low a rate, limits the amount of pooled revenue to finance a broad range of health services and goods. The low contribution rate is one of the reasons that high co-payments are levied on insured services in Korea as the NHI fund is insufficient to cover a comprehensive benefit package that does not involve large co-payments.

Given the disadvantages of high contribution rates and the unfeasibility of imposing high contribution rates, LMICs considering universal coverage ought to consider other avenues that may facilitate enrolment of the informal sector in mandatory schemes. Low income levels in LMICs countries because of low economic activity may hinder willingness to make high contributions; therefore, financial incentives are likely to offer better prospects for enrolling the informal sector in social insurance schemes. Financial incentives offered to informal sector workers under a 'mandatory' contribution arrangement may encourage enrolment and avoid evasion. Evasion of the mandatory contributions was widespread prior to the launch of *Seguro Popular* in Mexico because of a weakly enforced 'mandatory' contribution arrangement for the informal sector. The previous two schemes catering for the informal sector failed in extending full coverage especially to rural dwellers, the poor and other vulnerable population groups. *Seguro Popular* has been more successful in enrolling the informal sector because of its far-reaching financial incentives that include: full subsidization of contributions for vulnerable groups (funded from tax funds); preferential enrolment of the poor in the scheme; financial incentives for state-run health facilities to improve service delivery since federal transfers are pegged on the number of *Seguro Popular* enrolees; and a comprehensive benefit package without co-payments (Knaul et al. 2005).

Multiple funding mechanisms and risk fragmentation

Evidence from Canada and the United Kingdom show there is minimal risk fragmentation in the tax–financed single-payer systems, which are very large risk pools. These single payer systems have lower administration costs and tend to more efficient in fund management. These countries also have redistributive policies for the allocation of financial resources that equalize geographical inequities by moving funds from low to high-need pools based on indicators of relative need for care in the population.

Multiple schemes are sometimes favoured in the transition to universal coverage, either mandatory and/or voluntary risk pooling. The risk pools can range from private prepaid plans catering for the affluent, employer-based SHI for formal sector workers and occasionally CBHIs for the informal sector (self-employed and low-income earners). Risk fragmentation is inevitable in such a system because of the numerous small risk pools, which limits both income and risk cross-subsidies. A multi-payer system is for the most part characterized by gaps in coverage, revenue fluctuations in schemes and often by poor fund administration. This is the state of affairs at present in Mexico's multi-payer system social security system and in pre-reform Korea prior to the integration reform. The numerous formal sector schemes in Mexico vary in size, operate independently of each other and offer different benefit packages. Just like pre-reform Korea, the schemes are defined by type of employer. Some schemes have a higher number of enrollees and allow for greater risk sharing compared to others.

The take home message for countries considering universal coverage through a multiple-payer system: minimize the number of risk pools and offer a similar statutory benefit package across schemes. This will ease integration when 100% population coverage has been achieved. Korea exemplifies the feasibility of integrating multiple schemes when the benefit package is similar, while Mexico illustrates the challenges of integrating multiple schemes that are diverse in the structure of the benefit package and organizational structure into a single payer.

Political transition and actors in providing a window of opportunity for reforms

Political transitions opened windows of opportunity for pursuing universal coverage in all the OECD countries reviewed. While authoritarian regimes seeking political legitimacy introduced and enforced mandatory health insurance in Korea, it was democratization that opened a window of opportunity for the government to participate more in social policy. This paved the way for major health reforms (Kwon, Reich 2005) by allowing the input of vested interest groups (academics and civil society groups) in shaping the health policy process (Kwon 2009, Kwon, Reich 2005). Universal coverage was achieved under egalitarian regimes, a political milestone in the democratic struggle (Kwon and Chen 2008). In Mexico, political activism led to the political liberalization of Mexico in 2000 ending the 71 year-reign of the Institutional Revolutionary Party (PRI) (Beltrán 2007). Some of the social reforms such as the implementation of universal coverage were passed after this historical political transition. In the United Kingdom, the Labour Party, a powerful political actor, endorsed the universal coverage law in the 1940s after the end of the Second World War (Savedoff 2004).

The significance and contribution of political actors and transition in shaping health policy is irrefutable. Identifying and taking advantage of a window of opportunity during political transitions is fundamental to the transformation of social policy.

The degree of social solidarity in society

The public and private risk pooling mechanisms prevalent in high income countries arose from cultural, economic and historical decisions to devise prepayment mechanisms that ensure adequate financial risk protection for the population (Gottret, Schieber 2006). The unprecedented moves in support of income redistribution and public spending on social services such as education, health and social protection, reflect the degree of social capital in these countries. Social capital is a theoretical concept that relates to the level of social networks in a community and the extent of shared values (Wang et al. 2009). The impact of social capital particularly on population health differs across countries and continents due to diversity in societal norms and diverse belief systems. Evidence has shown that societies that do not have strong social networks expend efforts and resources

inefficiently resulting in health inequalities (Wang et al. 2009, Raphael, Bryant 2004).

Societal beliefs and values cannot be overlooked when considering universal coverage. Universal coverage is modelled on the principle of social solidarity, which determines the willingness to introduce and maintain cross-subsidization especially from the rich to the poor or the healthy to the sick. For instance, Confucian family values in Korea which focus on family as a unit and not as individuals were taken into account when mandatory insurance was introduced by extending coverage to the insured's dependants. Additionally, Oriental medicine, a vital component of Korean culture was incorporated alongside contemporary medicine as an insured service (Son 1998). In the United Kingdom the devastation of the Second World War created a strong sense of nationalism and social compassion that surpassed social class stratification. The cross-class solidarity was fundamental in introducing the equity ideals the NHS was modelled on (Savedoff 2004). In Canada, the economic depression in the 1930s (Hirdes 2001) ignited a sense of responsibility by provincial governments to step in and offer financial protection to the masses that had lost their livelihoods.

Society today is defined by a new world order, neo-liberalism, which entered the global arena in the late seventies (Navarro 2006). The promotion of individualism and consumerism at the heart of neo-liberalism has resulted in the widening of the social distance with adverse consequences for population health. Health inequalities that existed before the emphasis on neo-liberalism have been exacerbated (Coburn 2000).

LMICs have been affected the most under the neo-liberal era. Private investors under the shield of the powerful ruling elite have dominated most economic sectors and are shaping social and economic policy in LMICs. Most of this has been through the liberalization of health markets. The working class, which was and still is a powerful voice in socially driven movements in high-income countries, is small and powerless in LMICs. In the United Kingdom and Canada, the working or middle class is large and is largely committed to upholding the ideals of social solidarity and

universal access to health care. Its dominance suppresses the relentless voice to privatize health care.

Nonetheless, LMICs can still re-establish social solidarity through community initiatives such as CBHIs. The schemes create cohesiveness while creating a sense of 'belonging' since these schemes are characterised by membership in a given geographical area and of similar religious or occupational (e.g substinence farming) affiliations. Moreover, CBHI schemes can serve as learning models for the promotion of social solidarity. However, government legislation is still needed to formalize the schemes and make enrolment compulsory if they are to form part of a mandatory insurance system (Bärnighausen, Sauerborn 2002).

Create financial incentives for providers to cut costs and improve service delivery

In typical labour markets, increases in the supply of manpower result in a decrease in earnings, loss of job security and low consumer prices. The health care market deviates from this norm, being plagued by supplier-induced demand (SID). This occurs because of the superiority in the knowledge base and clinical expertise of doctors; providers use this information asymmetry to influence consumer behaviour through over-utilization of unnecessary health care to maximize the provider's utility (Labelle, Stoddart & Rice 1994).

SID is a contributing factor to the escalating health cost inflation in Korea where fee-for-service is the main method of reimbursing for-profit providers. Since providers bear no financial risks under this payment method, they have little incentive to cut costs and instead induce demand, for often, unnecessary services. However, some reimbursement methods such as the diagnostic-related groups (DRG) shift the financial risks from patients to providers, and by so doing diminish the tendency to maximize provider utility. The recent endorsement of the DRG analogue method, Health-Resource Groups (HRG), for reimbursing inpatient care in the United Kingdom shifts the financial risk to providers. Conversely, salary and capitation payment methods have negative incentives to provide insufficient or inadequate care through under-servicing. However, the capitation service contract for GPs offers financial rewards for effective delivery of care especially for patients with chronic

ailments. This is a great motivation for GPs to improve the health outcomes of the population they serve.

LMICs should adopt provider payment methods that shift greater financial risks to providers**.** Provider behaviour is also heavily influenced by a monopsonistic purchaser. Given that health systems in LMICs are likely to constitute multiple purchasers, supply-side regulation by government is needed to ensure efficiency in delivery of health services.

Strengthening primary health care through a strong referral system

The United Kingdom is a good example of how a strong referral system has ensured positive health outcomes while maintaining relatively low per capita expenditures. Organizing primary care providers in groups or trusts promotes efficiency in fund management with low spending per capita. Canada, Korea and Mexico do not operate an integrated system and there is an overreliance on hospital-based acute care rather than primary care leading to escalating health expenditures on health care.

The primary care system in the United Kingdom also gives general practitioners incentives to practice in remote areas and underserved areas rather than setting up practices in urban densely populated areas (Light 2003). This is because GP practices in deprived areas receive more funds from central government.

Health technology assessment (HTA) and economic evaluations.

In this time of rapid technological advancements, treatments and pharmaceutical innovations, HTAs and economic appraisal are fundamental in ensuring only cost-effective interventions, pharmaceuticals and technologies are covered by funds raised through mandatory prepayments schemes in a universal system.

Given that universal systems can be single or multiple payer systems, single payers by way of their strong monopsonistic purchasing power are in a better position to control spending on technology, pharmaceutical and diagnostic aids. The United Kingdom provides a good example of how a single payer uses its monopsonistic purchasing power to influence the reimbursement decisions based on HTAs and

economic evaluations performed by the National Institute for Clinical Excellence (NICE).

It would be useful for LMICs to draw on the evidence on the economic efficiency of health technologies and pharmaceuticals to maximize technical efficiency given the scarcity of resources.

Control pharmaceutical expenditures

Canada and the United Kingdom have relatively low pharmaceutical expenditure which can be attributed to stringent pharmaceutical regulation. Though the United Kingdom does not have a national formulary, the British National Formulary (BNF) lists all drugs licensed for use in the country as well as those not covered by the NHS. Additionally, primary care trusts (PCTs) and hospitals have their respective formularies that aid in prescribing (Busse et al. 2002). In this way the market share for high cost drugs is highly controlled through pricing policies. Canada uses price comparisons to set market prices for pharmaceutical products using average pricing, an approach involving comparing identical products in other countries with the underlying assumption that the prices in the comparator countries are fair. The United Kingdom allows free pricing of drugs but the Pharmaceutical Pricing Regulatory Scheme controls the overall profits a pharmaceutical company can make. This limits the sale of branded products to the NHS (Mossialos, Brogan & Walley 2006), which in turn maintains low pharmaceutical spending.

Pharmaceutical policy should be strengthened in LMICs to control most of the unwarranted spending.

Regulation of private health insurance (PHI)

Private insurance is highly regulated in the four countries reviewed. Stringent regulation of PHI by limits its scope of coverage to only health care services that are not publicly funded. This way preferential access to care is not given to those with PHI especially in health systems where there are long waiting lists for publicly funded services. PHI therefore does not facilitate queue-jumping since this source of private finance seldom flows to providers of publicly covered services. This is the role of PHI in the United Kingdom, as financial flows from this source seldom flow

to the public payer. Secondly, tax rebates are not offered for PHI at least in most of the countries.

LMICs can develop regulatory frameworks, through appropriate government policy, to ensure that private commercial insurers meet the equity goals of public insurance especially in this era of liberalization of health markets. While enforcements of regulation of PHI in LMICs may be challenging due to poorly developed institutional capacity (Sekhri, Savedoff 2006), laying a strong foundation for PHI stringent regulation at the onset of the transition to UC in LMICs, with defined roles will ensure that the PHI industry adheres to stipulated policy.

Conclusion

LMICs face considerable challenges in moving towards universal coverage but can draw important lessons from the long experience in high income countries that run universal health system. Besides the prepayment financing mechanism chosen to promote universal coverage, either through general tax revenue or mandatory insurance contributions, contextual factors such as: the fiscal climate; politico-economical factors; the degree of social cohesiveness; organizational structure of the health system and supply-side regulation; determine if the overall goals of financial protection and equity in access are achieved. For policymakers in LMICs, these factors cannot be overlooked and should be taken into consideration when embarking on the road to UC.

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References 4: Policy Brief

Bärnighausen, T. & Sauerborn, R. 2002, "One hundred and eighteen year of the German health insurance system: are there any lesson for middle- and low-income countries?", *Social science & medicine*, vol. 54, no. 9, pp. 1559.

Busse, R., Dixon, A., Krasnik, A., Leon, S., Paris, V., Polton, D., Rico, A., Robinson, R., Sandier, S.'.T., S., Vallgarda, S. & Vrangbaek, K. 2002, *Health care systems in eight countries: trends and challenges.*, The European Observatory on Health Care Systems, London, UK.

Coburn, D. 2000, "Income inequality, social cohesion and the health status of populations: The role of neo-liberalism", *Social science & medicine*, vol. 51, no. 1, pp. 135.

Gottret, P. & Schieber, G. 2006, *Health Financing Revisited: A Practitioner's Guide*, World Bank, Washington.

Hirdes, J.P. 2001, "Long-Term Care Funding in Canada: A Policy Mosaic", *Journal of aging & social policy*, vol. 13, no. 2, pp. 69.

Knaul, M.F., Arreola-Ornelas, H., Mendez-Carniado, O. & Miranda-Munoz, M. 2005, "Preventing impoverishment, promoting equity and protecting household from financial crisis: Universal Health Insurance through institutional reform in Mexico", .

Kwon, S. 2009, "Thirty years of national health insurance in South Korea: lessons for achieving universal health care coverage", *Health Policy and Planning, Hea Pol and Plan*, vol. 24, pp. 63-71.

Labelle, R., Stoddart, G. & Rice, T. 1994, "A re-examination of the meaning and importance of supplier-induced demand", *Journal of health economics*, vol. 13, no. 3, pp. 347-368.

Light, D.W. 2003, "Universal health care: lessons from the British experience", *American Journal of Public Health*, vol. 93, no. 1, pp. 25-30.

McIntyre, D. 2007, *Health Financing. Learning from experience: Health care financing in low- and middle-income countries*, 1st edn, Global forum for health research, Geneva.

Mossialos, E., Brogan, D. & Walley, T. 2006, "Pharmaceutical Pricing in Europe: Weighing up the Options", *International Social Security Review*, vol. 59, no. 3, pp. 3-25.

Navarro, V. 2006, "The Worldwide Class Struggle", *Monthly Review: An Independent Socialist Magazine*, vol. 58, no. 4, pp. 18-33.

OECD 2007, 24/10/2007-last update, *Revenue Statistics 1965-2007, 2008 Edition* [Homepage of OECD], [Online]. Available: http://www.oecd.org/dataoecd/48/27/41498733.pdf [2009, September] .

Raphael, D. & Bryant, T. 2004, "The welfare state as a determinant of women's health: support for women's quality of life in Canada and four comparison nations", *Health policy (Amsterdam, Netherlands)*, vol. 68, no. 1, pp. 63-79.

Sekhri, N. & Savedoff, W. 2006. "Regulating private health insurance to serve the public interest: policy issues for developing countries", International Journal of Health Planning and Management vol 21, pp 357-392

Savedoff, W. 2004, *Tax based financing for health system: Options and experiences*, World Health Organization, Geneva.

Son, A.H.K. 1998, "The construction of the medical insurance system in the Republic of Korea, 1963–1989", *Scandinavian Journal of Social Welfare*, vol. 7, no. 1, pp. 17.

Wagstaff, A. 2009, "Social health insurance reexamined", *Health economics*, .

Wang, H., Schlesinger, M., Wang, H. & Hsiao, W.C. 2009, "The flip-side of social capital: The distinctive influences of trust and mistrust on health in rural China", *Social science & medicine*, vol. 68, no. 1, pp. 133-142.